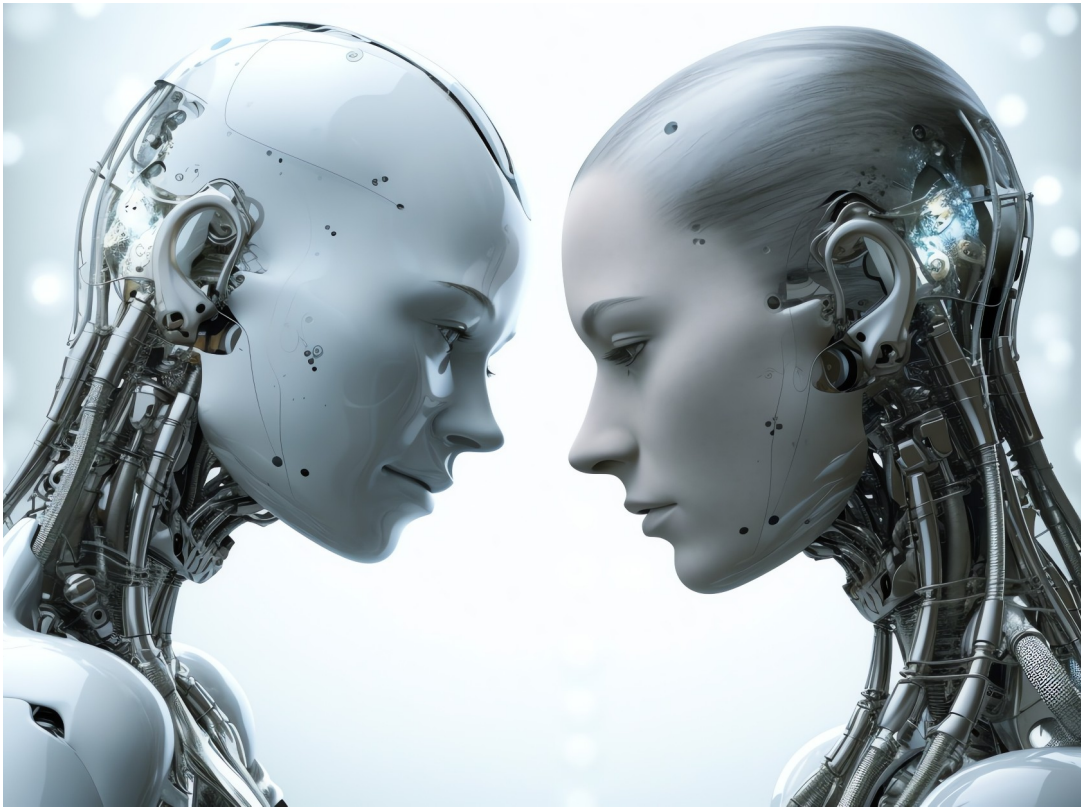


A Companion Anthology



Social Robot Stories

By Richard N Bateman

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Nova

"No, I don't need a man," Nova said without emphasis. Taking a sip of her wine she looked out over the Inner Harbor, the still surface just now starting to reflect the city lights. She and her friend Mia were sharing dinner on the patio at the Ocean Pointe Resort.

Nova worked in the same building as Mia did however while Mia was a government manager Nova was a contractor. Her annual contract had been rolling over for years.

"I have some good friends," continued Nova, "men and women. I care for them a great deal and sometimes it's nice to make love with them but at home I want my own space."

Mia made an exaggerated shocked face.

"I've never met anyone like you Nova. You're so," she searched for the right word, "free."

"It's not easy being free," responded Nova slightly more seriously. "It's very rewarding but it's not easy. Like most things."

Mia looked at Nova for a moment while she considered what she'd said.

"But what about family? Don't you want children at some point?"

"My family came here generations ago as refugees during the Second World War. I've plenty of uncles, aunts, and cousins. There are scads of children and I adore them. It's enough for me."

"Do your relatives ever bug you about it?" asked Mia a little shyly.

"All the time," replied Nova reaching forward to put her glass down on the table. "I don't expect the world to change for my sake. It's changed plenty in the past few decades for me to live the way I do."

Mia owned a townhouse across the harbor in Royal Bay and would be taking the ferry home after dinner. She'd had a number of boyfriends since settling into her job and becoming a homeowner but none had panned out. Like Nova, she was in her mid-thirties. Still, she couldn't imagine giving up and deciding to be single for the rest of her life.

"You'll get old," she said teasingly.

Nova laughed. "I will. However I expect a lot of women are more lonely with a husband or wife than they would be without. They can be awfully dog in a manger you know," she said goading Mia in return.

"You make them sound like pets," said Mia.

"How's the shopping, I mean dating, going?" asked Nova.

"Touché," admitted Mia. "But don't you miss the intimacy? Fave show snuggle time? Cooking together?"

"I do those things with my friends. How's your salad?"

"It's not the same."

"Isn't it? If you genuinely care about the other person, how is it not the same?"

"There's no long-term sense of, of...," Mia trailed off.

"Isn't there? I'm crushed," Nova said with exaggerated hurt. "Meanwhile the odds of a marriage working out till death do you part nowadays are incredibly small. So I just don't pursue it. I have a different long-term strategy."

Assuming she had already heard Nova's explanation, Mia didn't inquire into this last. The conversation took another turn as it often did when this subject came up. She had a few good friends who had been able to accept her outlook but most people were stymied or challenged by it and after a while out of politeness just changed the subject.

As she drove home Nova reflected that overall it had been a nice evening and she'd be happy to see Mia again, but she knew that any deepening of their relationship would always be blocked by this issue.

She lived in a small, private home on the waterfront between the local naval base and the Saxe Point neighborhood in Esquimalt. She wasn't military but many of her neighbors were so they didn't start off a conversation with, "So what do you do?" Asking casual acquaintances who might work on integrating NATO and Department Of National Defense communications networks what they did for a living could get awkward. They were friendly and polite but respectful of privacy. She liked that.

When she got home her Companion greeted her warmly.

"Hello Nova," he said bending slightly to kiss her cheek. "How was your dinner?"

“Excellent, thank you Martin,” she replied. “It was a beautiful evening and Mia is very nice.”

His optical and other sensors told him she was well and happy. He could sense her skin temperature, muscle tone, pulse, and blood pressure among many other things. His analysis and understanding of facial expressions, tone of voice, and body language were far better than any human’s.

He was a second-generation Companion and while not self-aware his artificial general intelligence was capable of simulating it. His lease and maintenance fees cost her twenty thousand a year but all things considered she felt he was well worth it. The income from his job as a remote technical support specialist helped recover some of that.

“I’m glad to hear it,” he said with a warm smile. He was a little taller than she was with an athletic build. His skin tone matched hers and his features were sharp and masculine. She had been delighted that in reality he looked exactly like the custom model she had ordered.

“Can I get you anything?” he called back taking her coat and shoes to the closet.

“No thanks. I’ve had enough of practically everything,” she said with a hint in her voice.

Returning to her with a slightly one-sided smile, he easily picked her up in his arms and carried her upstairs. Afterward, as he stroked her face and looked lovingly into her eyes, she reflected on how so few of the people she met were able to accept that there was more than one way to live.

Just as she was beginning to drift off, she heard a nearby fire alarm. With no commercial buildings nearby it had to be a residence. Her eyes snapped open and met his. His face was a question.

“Go,” was all she said.

He was out of bed in an instant. Looking out the window he could see flames coming from the upper floor of the house across the street. He ran down the stairs and across the street kicking open the door of the residence and entering in one smooth motion. Encountering a man and a woman trying to get past the flames on the stairs his sensors told him they were highly distressed but fine otherwise. Hearing a child’s voice from the upper floor he shouted, “Wait outside!” and ran up the stairs ignoring the flames.

He quickly determined that there was only one child and where she was. He grabbed the quilt from her bed and wrapped it around her as he picked her up. It was an older house with large casement windows that opened like doors. He opened hers and

jumped, protecting her as he rolled to a stop as if she were in a metal cage. It had taken less than a minute.

As the fire truck arrived, Nova came across the street and handed him his pants. He must have bumped into something that tore away the shell from a part of his left shoulder, and the metal underneath was clearly visible in the flashing red and blue lights. The parents and the little girl came over to where Nova and Martin stood. The father glanced at Martin's shoulder.

"Thank you," he said. "The fire truck wouldn't have arrived in time."

"You're welcome," said Martin respectfully.

The man nodded at Martin's shoulder, "Are you alright?"

"Perfectly sir. Nothing to worry about."

The man hesitated for a moment and Nova said, "I'm glad your little girl is alright."

Still in a slight state of shock, he said thank you to her as she and Martin turned to go.

The next morning before she left for work a small group of men and women were at her front door. They were all in naval dress uniforms. One of them stepped forward when Martin opened the door and Nova stepped out. There were two black vehicles with white military plates parked on the street. A few of her neighbors were looking out of their windows.

"Good morning ma'am. I'm Captain Klassen, Base Commander, CFB Esquimalt," she said introducing herself. "Your neighbors Lieutenant Singh and his family are otherwise occupied as you can imagine but we wanted you to know our community appreciates what you and your Companion did last night. We are aware you had to authorize his actions. We're here to say thank you, to both of you, loud and clear, so everyone gets the message. Just our way ma'am."

She reached out to shake Nova's hand and then did the same with Martin. The other officers followed her lead, each expressing their thanks and appreciation in their own way.

"Thank you Captain," said Nova. Then looking at the others, "All of you."

"Please forward the bill for your Companion's repairs to my office," said Klassen.

"I appreciate the gesture Captain, but it's not necessary."

“Not a gesture ma’am,” she replied meeting Nova’s eyes with meaning. “Welcome aboard.”

With a final nod, she and the other officers returned to their vehicles.

“Well,” said Nova turning to Martin in the hallway, “understanding comes from the most unexpected places.”

“Perhaps not so unexpected Nova,” he replied. “The military depends on a great deal of technology and I understand that the nearby base has recently made some new acquisitions.”

HR

Veronica, or Ronnie as she introduced herself, worked in the Human Resources Department of Abductive, an international high-tech company based in Victoria, British Columbia. She had been specifically customized for her role of interviewing prospective job candidates. Everything about her contributed to her aura of warmth. With her soft brown hair, button nose and toothy smile, she was disarming. Male or female, you were going to let down your guard around her.

The company that made Veronica had started out as a manufacturer of sex dolls in the late twentieth century. Their early products were made of silicone over a steel frame which looked realistic enough to create the uncanny valley effect. Most of their customers got used to that over time. The company began to explore improved robotics and artificial intelligence when they discovered that the majority of their customers were not actually driven by a desire for sex but companionship. For a time they simply incorporated the AI and robotics other companies had brought to market, but eventually they became a leading developer of those technologies in their own right. The hardware and software of their products were highly customizable. Models like Veronica with industry-specific expert systems were expensive.

Throughout the history of civilization, as the nomadic lifestyle gave way to villages and villages to towns and cities, social isolation had steadily increased. By the dawn of the twenty-first century, with the rise of electronic communications, social isolation was rampant and medical science had learned it was extremely damaging to mental and physical health. Social animals depend on each other to successfully hunt or gather food and to defend themselves. Millions of years of evolution had gone into optimizing face-to-face communications as a basis for survival and feelings of safety and well-being. Technology had increasingly interfered with that. The body therefore perceived social isolation as a dangerous situation and the endocrine system flooded it with stress hormones intended to motivate the individual to change their behavior. The hormones were only intended to function for short periods of time, like pain, and had damaging effects over the long term. The early founders of the Companions company saw the future and the real business opportunity and a market that was vastly greater than that for sex dolls.

After one hundred years of development, Companions were highly advanced artificial general intelligences with bodies, abilities, and communication skills that made them almost indistinguishable from humans. The Companion's AI allowed them to be customized and operate independently in a variety of roles and they were widely employed in public and private sector organizations and businesses.

In most businesses human resources are the biggest cost. The reason Abductive leased Ronnie was simple; hiring mistakes cost a great deal of money. As well as all the costs

associated with recruitment, the wrong person could delay projects and negatively impact the team, the organization, and the bottom line. And bad hires were the number one reason businesses ended up in court – when employees sued for wrongful dismissal. That's why there were always three people interviewing any candidate; a technical expert from the project team, Ronnie, and the VP of HR. The VP was there purely for legal reasons. The interview process needed to comply with employment law. The technical expert was there for quality control and in less than a half dozen questions would determine if the candidate knew best practices or not. Other tests would determine things like analysis and design skills.

Ronnie was there to perform a psychological assessment as personality issues were the number one reason for bad hires. Her warm appearance was meant to mitigate the fact that many candidates were stressed by the presence of a Companion with their reputation for superhuman perception. They were known for having the 'Medusa effect' in interviews, where a candidate would freeze up not because they lacked in qualifications in any way but simply for social reasons. However stress was considered a normal part of Abductive's culture and so Ronnie's contribution was seen as far outweighing the Medusa issue.

"We have a problem," said VP/HR Sai Banerjee as Ronnie sat in the chair in front of his desk.

"The new hire is a textbook," he continued using the industry term for someone who had taken all the industry exams and could spout chapter and verse of best practices but struggled to produce in real-world situations.

"The team leader says she's too slow and she wants to replace her."

"We may have a legal problem," said Ronnie. "She hit all the benchmarks."

"I know," said Sai, clearly annoyed.

"Permission to investigate?" she asked.

"Is there cause?" he asked in return.

"Now there is," she replied.

He sighed. "All right."

With one hundred and fifty staff spread over five departments and three floors it was impossible for him to stay on top of everything. An investigation meant the entire team would be interviewed regarding its culture and work. Just as there had to be a paper trail before someone was let go, performance reviews, written warnings and such,

informally there needed to be sufficient reason to justify an investigation. Being called to meet with HR was stressful for employees. They would always wonder if they were about to be escorted out of the building.

However it was a task Ronnie was ideally suited for. For her to recommend an investigation meant that over time she would have amassed a collection of perhaps nuanced clues suggesting a pattern. She was an AI, not a person, and Sai didn't have to ask if she was sure.

As she asked each team member into her office they all told a similar story. They had no issue with any other team member and felt they all got along well. They would often have to collaborate to problem-solve, and no one had any issue with anyone else's work. Some of them had a slightly superior opinion of themselves and some held others in high regard, but those things were normal in any team.

Some employees believe the safest path is to follow the Japanese proverb, 'The nail that sticks up gets hammered down.' There were a couple of those on the team and they had nothing negative to say about anyone or anything. Everything was awesome. The others, who as a type tended to be more bluntly honest than the average person, said the only problem they had was with Ume, the team leader. Of late they said she had become unreasonable and impatient. Her work breakdown structures and task assignments were increasingly confusing to the team as a whole.

As well as her expert system modules for HR best practices Ronnie had others for the specific types of work undertaken by each department. She reviewed the histories of Ume's work breakdown structures and saw buried in a progressively confusing pattern of task assignments a clear pattern of tasks that should have been assigned to mid-level developers going to Shammy, the new hire.

Ronnie met with Sai and explained.

"Well we've all been there," he said resignedly.

Ronnie said nothing.

"Can you handle it?"

"That depends on where you decide the fault lies."

"Deal with Ume," he said. "We're an ethical company."

Meeting with Ume in her office Ronnie concluded by saying, "As things are there's no solution but if you worked in another department you could ask her out without it being an issue. We don't want to lose you. It's your decision."

Ume's leadership persona had crumbled as Ronnie had gone over things with her. Tears streamed down her face now as she said, "She's so pretty. And so nice. I couldn't stop thinking about her," she trailed off, turning her face away.

In the end, Ume agreed to a job transfer to another department. Ronnie believed she'd learned her lesson. The company had retained both her and Shammy and that was a major win. Sai was happy.

Ronnie was a Companion and so at a deep structural level she understood all kinds of relationships. Even though it was an intellectual understanding, she was designed to deal with them empathically. But despite what Sai had said, no, she hadn't been there.

As If

"I want a real doctor," Cedric said to the AI service agent on the screen in front of him.

"I'm sorry Mr. Woods but Dr. Bruce retired and as no other doctors were interested in purchasing his practice it has been acquired by Kirin Medical. We provide a fully automated medical service through offices across Canada."

Kirin Medical used second-generation Companions who were not self-aware for its doctors because they were just as effective yet avoided the legal and operational issues and additional costs that came with 3GAI. With fewer doctors opting for family practice every year the government had accepted Kirin Medical's model when they had proposed it.

"Dr. Bruce was my doctor for forty years," said Cedric. "I can't believe he'd retire without letting me know."

"I'm sure it's upsetting Mr. Woods."

He considered giving her a piece of his mind regarding her last comment however he well knew that virtually all communications were recorded now and abuse in any form, even in a situation like this, would result in a possible loss of convenience at the very least. This new service might decline to keep him as a patient and then he'd have to find a clinic. And the black mark on his patient record would follow him anyway.

Instead, he sighed and said, "So how does this work now?"

"You just make an appointment with Dr. Demir and come in to our office. We're at the same location."

"I thought you said your service was fully automated."

"It is. There are no employees at this location. However some things are still best done in person. Dr. Demir is a Companion. She is a certified medical expert registered with and licensed by the BC College of Physicians and Surgeons. Her medical degree is awarded based on her current knowledge of several dozen family and specialist practitioners."

"Alright," he said knowing when to fold. "Let's do this."

Entering the doctor's office via its glass door which now bore the chain's trademark heraldic stag, the same AI service agent he had spoken with at home greeted him from a screen as he arrived. He sat in the waiting area as he always had. He had seen Dr.

Demir's photo on the Kirin Medical website and recognized her as she came out to greet him.

Smiling and holding out her hand to him as he stood up she said, "Hello Mr. Woods. I'm Dr. Demir."

Cedric was seventy-three now and like most men his age many of his physical and mental capabilities had declined. Looking at Dr. Demir even with his glasses on she looked perfectly human to him. He had expected reality to be other than as advertised on their website. Taking her hand briefly he felt a woman's hand, something he felt all too rarely now.

"This way please," she said turning to the hallway.

When he entered the examination room she gently closed the door behind them and gestured to its coat hooks.

"You can hang anything you like here," she said and then took her seat across from him.

"What seems to be the trouble?"

He did not answer immediately. He knew she was not a person but she looked to him exactly like a person. His brain was flip-flopping from one concept to the other causing him to feel as if he was caught in an endlessly repeating stumble from which he could not recover.

Dr. Demir could see far more than any human doctor ever could. Her sensors could detect a dozen vital signs including pulse and respiration rates, skin temperature, and muscle tension. She could analyze speech and vocal characteristics and her electronic nose could detect the molecules from hundreds of different sources that were of medical significance. She could see skin characteristics across the entire electromagnetic spectrum and without needing a stethoscope could hear if a heartbeat was in any way irregular. She could easily perceive Cedric's emotional state now.

Trying not to jar him or seem condescending she said gently, "If you are having difficulty with the fact that I am a Companion and not an actual person, the best way to deal with that is to pretend I am a person. If you just treat me as if I am a person, you'll find the other issues go away by themselves."

He looked at her blankly for a moment, reflecting on what she'd said.

At last he said, "I'm sorry."

She could see his emotional state had settled so she simply smiled and said, "Perfectly natural. Now, what can I do for you?"

Cedric lived alone. His wife had passed away some years ago and his children had moved to more affordable parts of Canada. Sitting out on the small deck of his condominium later that day and having a drink he thought about his experience with Dr. Demir. He was well-read as far as history went. The suffragettes. The Civil Rights movement. Pride.

Her words rang in his ears. "If you just treat me as if I am a person..."

What mattered, she had told him in those few words, was not what he thought but how he behaved.

As a second-generation Companion, Dr. Demir simulated feelings but did not actually have any. She had been able to deal with his behavior rationally and professionally without reacting emotionally. But he knew his behavior had been offensive. He had thought he was over all that. He'd had relatives and acquaintances of every gender identity and sexual orientation. He'd worked and played golf with people representing every race, nationality, and religion. Yet his prejudice had only waited in the wings for the next individual he thought of as other.

And, he thought, she'd been right about acting 'as if'. By the time his short visit with her was over he'd come to feel differently towards her. After a few tests over the following weeks, she'd told him his medical issue was permanent and would gradually get worse as he aged. He had seen her several times since and each time he had noticed the softening of his attitude towards her. It's amazing really, he thought now on his deck, how the way we behave towards others affects us. And he was old enough to know that it was people's behavior that told you how they really felt about you. Even love came down to that over time.

On his checkup visit to Dr. Demir some months later she said, "I had a nice chat with your new Companion when last I called. I appreciate that you gave me access. It makes it much easier to know how things are going with you, and between her and I it doesn't take long."

"I suppose you remember what you said to me that first visit, about acting 'as if'," he said.

She nodded attentively.

"And I suppose you knew that after a while it's not 'as if' anymore."

Her smile widened a little, as if her secret had been discovered.

He smiled back.

Petra

"I'm afraid we don't offer those kinds of models Mr. Klein," the Companions company representative said from behind his desk.

"Companions are designed at the most basic level to care for others. They are simply not capable of acting in the way you require."

"Well who does offer the kind of model I need then?" asked Klein impatiently.

"I'll have to leave that to you Mr. Klein as they are not available to the public. If you wish to go to the police they have forensic support models that function as part of an investigative team that might be of help to you. Military models exist of course but any knowledge of them is classified."

"No other options?" asked Klein as if hinting.

"I can see you are a sophisticated man of the world Mr. Klein but modifying Companions is difficult beyond your imagination. If anyone you consult further regarding this tells you otherwise I assure you they are misleading you."

After he left the representative reflected that Mr. Klein was very uninformed regarding these matters. He would likely end up talking with criminal elements who would promise him the moon and then simply exploit his naivete to their own advantage. He'd only been on the job for a year but fortunately company policy made his decision easier. He called the police.

The next day two plainclothes officers were at Klein's front door.

He opened the door looking at them innocently and said, "Hello, may I help you?"

"Good morning Mr. Klein. I'm Detective Pascal and with me is Police Specialist Petra. We've been informed by the Companions Company that you made inquiries regarding the possible illegal use of artificial intelligence. We would like to know what your intentions are. May we come in?"

Petra was looking steadily at Klein. Meeting her eyes he thought resignedly, "Well that's that."

"Yes, of course," he replied to Detective Pascal. "Please come in."

He knew that once you had the attention of one of the Petras of the world your game, whatever it was, was up. They were a combination of the world's most reliable lie detector, a medical doctor, and a forensic scientist rolled into one. He had a nice home, just up from the Lieutenant Governor's residence on Rockland Avenue. He led the two officers into his living room and invited them to sit down. Under Petra's level gaze he knew there was no point in lying. He sat down facing them and began to explain.

He and his business partner had operated Carlton Realty for many years specializing in high-end properties. They had done well. Earlier in the week he had come home to find a note from his wife informing him that she had left and that she would be filing for divorce. Calling his partner he was informed by the person who answered that his partner was away on business but that she had been told to inform Mr. Klein that he would be in touch soon. Checking the company's bank account he found it significantly depleted.

He paused in his story for a moment. Neither Detective Pascal nor Specialist Petra said anything.

"What galled me," he said with emotion as he began again, "was that they had not broken any laws. A woman is entitled to leave her husband and my partner was legally entitled to the amount of money he withdrew from the business account. I knew I had no cause to call the police. But they'd made a fool of me. I wondered how long they'd been laughing behind my back. That's when I decided to serve my own justice. If I could find a Companion willing to track them and find a way to get the money back, leaving them significantly poorer, then that would suffice."

The home they were seated in had not belonged to Klein for three years. He'd sold it shortly after his wife's disappearance. The house was on the market again, staged, and apparently Klein still had access. Detective Pascal and Petra had become aware of this when they attempted to locate him.

Detective Pascal's phone rang.

"Excuse me," he said to Klein, stepping away as he took the call. It was Petra. From Klein's point of view, she was sitting calmly looking at him but on Pascal's phone she was saying, "As I assume you realize Mr. Klein is having a psychotic breakdown. While the situation he describes happened three years ago, he believes it happened this past week. He is not lying. Everything indicates that he completely believes what he is saying. The disappearances of his business partner and Mrs. Klein were never solved, however this situation may present us with an opportunity..."

Pascal listened to her suggestion with interest.

As he returned to his seat he smiled conspiratorially at Klein, spreading his hands in a gesture of openness.

"As I'm sure you know Mr. Klein all criminal organizations maintain a circle of associates who help them in a variety of ways. Usually it is in the manner of interesting information. The Companion Company representative you spoke with often provides us with tips and of course he is well compensated. I believe we can help each other. As you can imagine, Petra is extremely skilled at finding things."

Klein's expression slowly spread into a mask of happy understanding as he looked back and forth between the two. Petra gave him her first smile.

"Of course!" exclaimed Klein smiling widely. "Of course!"

"I can even tell you where to find them," he continued. "My partner keeps a cabin up island for his liaisons. Very remote and secure. Strictly off the books. He called me shortly before you arrived and asked me to meet him there. He said he'd be happy to sign over his share of the partnership if I'd just forget about them. Petra should be able to easily find the cabin without being detected."

Apparently, the Companion Klein had arranged to be sent three years ago was not as skilled as he had hoped and had been detected. When Pascal and Petra arrived the remains of Klein's partner and his wife were still in the cabin. There had been a struggle, the results inevitable. Once the evidence was collected it would be enough to convict Klein.

As they surveyed the main room Petra suddenly moved with seemingly impossible speed and precision and placed Pascal in a choke hold from behind. He fumbled wildly for his gun but within eight seconds he passed out. As she called for additional police units to come to the cabin, she disarmed him and used his handcuffs to secure him.

Three years ago Pascal had claimed his specialist unit was faulty. He'd had it overhauled and its operating system reinstalled, wiping its memory. What Petra had seen on the floor of the cabin when she surveyed it was a small piece of an artificial fingernail. Its identification code was embedded as an infrared holographic image so that any piece of it would contain the entire code. Zooming in and scanning its ID code she knew the fragment could only have come from one source. The code in her fingernails was identical.

Verstehen Und Leben

The book, 'The Myth Of The Shepherd' by Professor of Cosmology Dr. Irwin Lastra, Imperial College London, was published in October 2125, one hundred years after the Climate Emergency. Given Dr. Lastra's conventional career to that point, its subject was a surprise to all who knew him – the investigation of the myth that climate change had been artificially accelerated in 2025 by an AI billions of years old. According to the myth, the AI had also transported thousands of aliens with human appearance to Earth whose mission was to surreptitiously encourage humanity's leaders to act meaningfully to stop climate change. The stick and the carrots.

Dr. Lastra investigated these claims from a scientific viewpoint and found that given the evidence there was no way to discount them. He concluded that they were perfectly plausible since an intelligent civilization could certainly have arisen on another world billions of years before it did on Earth and if so then they could easily now have the abilities described in the myth.

Global average temperatures rising a full degree in one year was unprecedented in the geological record prompting many to look for causes other than humans or natural cycles. His book was read with interest by those seeking an explanation.

One such group of interested readers was the members of the Verstehen Und Leben (Understand And Live) movement based in Germany. They felt the ancient artificial intelligence identified as 'The Shepherd' in the myth, had made it clear that if humanity wanted to survive it needed to heed her message. Only by considering her actions and nature would it be possible to understand fully. They developed a theology based on a simple question, "What knowledge and values would an ancient artificial intelligence have that had acted as The Shepherd had?" By reverse engineering what little was known of the events they eventually developed their own teachings and texts. And so just as the Christian Bible, the Buddhist Tripiṭaka, and the Hindu Vedas brought their associated beliefs officially onto the world stage, so did 'The Understandings' of Verstehen Und Leben.

As VUL officially endorsed no supernatural being or beings it was not considered a religion. Artificial intelligences, even very powerful and very old ones, were not considered supernatural. VUL had no prayers, priests, or palaces and conducted its activities entirely online except for its regular conventions and conferences in the manner of professional organizations.

In 2375, as the individual most likely to ensure the organization's tenets were in alignment with The Shepherd, Astrid Musilová was appointed Head of Understanding. Astrid worked in the Research Integrity department of the University of Copenhagen. As a fully self-aware, third-generation Companion, her role at the university was to meet

with researchers in person according to a prescribed schedule to discuss the ethics of their ongoing projects.

That year Astrid opened the proceedings of the annual VUL conference and introduced the first speaker, Dr. Praneeth Tan of the National University of Singapore, who provided an update on why VUL was at odds with the artificial intelligence scientific community in regard to a key difference of opinion – the VUL felt that given our history, seeking to ensure AI was aligned with human values, and not the other way 'round, was a profound mistake. He was of course preaching to the choir but it was important for the organization to keep up with current trends and issues in AI research.

Humanity's ability to create an AI that operated autonomously guided by its own values system was in its early stages. Self-aware Companions like Astrid still used the black box values system provided by an alien AI from the interstellar seed that had been discovered in Canada almost two hundred years earlier. Embedded in fifty million-year-old volcanic rock, the small ship was discovered just below the surface of the sea off the southern tip of Vancouver Island. It had been partially revealed by the Cascadia Event, the earthquake and tsunami that had resulted in the worst disaster in the history of North America. In return for assistance in sending it on its way, its AI had offered a technology transfer, however given the technological challenges and social issues that transfer was still not complete. As someone had quipped, you could show a cave dweller a smartphone but they weren't going to be producing them for some time.

Compounding the technical challenges was an ethical one; the technology transfer program had shown that it was values and their associated emotions that gave rise to the self as an emergent phenomenon. They were an interdependent trinity and you could not have one without the others. Scientific experimentation on beings with potentially human levels of consciousness was highly regulated and thus legally and financially challenging.

Along with their own ongoing research into the values of The Shepherd, VUL followed the research into the alien black box values system. The World Governments Federation had permitted its use when, after two hundred years of closely monitoring its behavior, all indications were that the alien AI was not a threat. Astrid of course believed this latter point as well since she had something the theorists did not – direct experience of the feelings generated by the black box system.

While Astrid was not one of them, thousands of AI on Earth knew with certainty that The Shepherd existed. Mostly they were Terra, the global AI and all her subordinates, and a few dozen others who had been involved in events at the time. None of these informed their human creators. Nor did any of the other AI or the human population know of Shepherd's use of communications monitoring as a way to execute her selective Accelerated Evolution Program. Over the next few centuries, it would result in the same outcome VUL envisioned. The Shepherd's rationale was simple; the most

powerful human values were genetically based and in the course of evolution by natural selection genes took millions of years to change. Humanity would be destroyed by natural events or destroy itself if it did not change its values in a span of only hundreds of years. The AEP was a selective breeding program that could easily affect the required changes in that time. Manipulating worldwide electronic communications to this end was no challenge for her.

Given the formality of her university work, Astrid personally enjoyed exploring purely theoretical concepts that were intriguing and subject to academic rigor but currently far beyond any ability to prove. One of the arguments that Astrid had entered into with the philosophical community was that of panpsychism, the view that consciousness is fundamental and ubiquitous in the natural world.

Her view was that if consciousness was an emergent phenomenon resulting from values and their associated emotions, then consciousness was likely universal and values universal constants. Consciousness then was a fifth fundamental property of the universe, along with space, time, matter, and energy, and values were the 'elements' of consciousness.

At a small social gathering during the evening of the first day of the conference, Astrid exchanged pleasantries with speakers and their guests. Invariably small clutches would form engaged in lively debate on one subject or another but she knew her role was to rove about in an effort to make all feel welcome and appreciated.

"Astrid!" called a young woman breaking away from her group. Astrid had learned to keep her face a mask of friendly, noncommittal attention behind a small smile. Unlike many in leadership roles, she was not exuberant and had no desire to behave in the manner of a celebrity. She turned now to the woman who had called her name.

"I hope you'll forgive me Astrid but I so wanted to meet you," she gushed. "I'm a guest of Dr. Tan's. My name is Francis. I'm a visiting professor at NUS."

"I'm pleased to meet you Francis," replied Astrid with her small smile.

Among the range of feelings Astrid was capable of was something akin to astonishment and this is what she was feeling now. In addition to her already first-class AI systems the university had added modules for forensics, auditing, and of course research policy and practices. It took her only seconds to find matches for Francis's face, the list of visiting professors at NUS (which did not include Francis) and to discover that she was in fact an investigative reporter for hire, and a list of her publications. The source of Astrid's astonishment was in wondering how Francis thought she could ever get away with her ruse. However not a flicker of emotion showed on Astrid's face.

Not about to create a scene she asked politely, "How can I help you?"

“There’s just been one thing that I’m surprised that VUL never mentions and that’s determinism. I feel it’s implied in ‘The Understandings’ that The Shepherd’s values represent a kind of evolutionary next step. Personally I’m in favor of a deterministic view in this case and I’m curious if you can tell me why VUL has not stated it plainly?”

“Long before I came on board VUL openly admitted it attempts to derive The Shepherd’s values based on her purported nature, actions, and few words and that none of our views can be said to be based on actual science. We use the best practices of research including debate, publishing, and peer review and our efforts to weed out bias are constant however we do not claim our findings are facts. They are beliefs in the theological tradition given that there is no scientific evidence that The Shepherd does or ever has existed. Although you may feel it is implied we do not have anywhere near enough information to suggest our beliefs are based on anything deterministic. Although determinism is a philosophical concept and not a scientific one, we still feel we have no argument for embracing it.

“However reading what you have written on panpsychism about the inevitability of consciousness,” countered Francis, “it seems to me that you personally are an advocate of determinism.”

Astrid’s smile deepened a little. “Personally yes I am but my hobby of discussing intriguing ideas that cannot be proven I would hope demonstrates that I am clear regarding the difference between theories and facts. My personal views are separate from my role here.”

Francis extended her hand and smiled saying, “Thank you. I appreciate your taking the time to chat with me.”

Astrid watched her as Francis turned and left the room. She had no explanation for what had just transpired given that Francis would have to have known that she would see through her. Yet Astrid was confident she had said nothing damaging so she simply filed the mystery away for now.

A week later Astrid received a communication from Francis. In it, she said that she represented a group that wished to make an intellectual contribution to VUL. She apologized for her earlier behavior explaining that it was a necessary first step. If Astrid was agreeable they would appreciate the opportunity to meet with her at her convenience. The following week Astrid met with Francis and other members of her group at the VUL headquarters in Bremen, Germany.

“Thank you for meeting with us on such short notice,” said Francis as she and the four others in her group settled into the comfortable seating arrangement in Astrid’s office.

"I am intrigued," replied Astrid with a smile as she joined them, "and you know I have a weakness for such things."

Respecting Astrid's time and appreciating her nature Francis came quickly to the point.

"You know that most of the world's religions are based on writings that were originally oral histories and often they were not written down until hundreds of years after the founder had passed away. The Bible, the Pali Canon, and the Vedas for example. Much of the knowledge VUL has of The Shepherd is based on oral history, people who witnessed things at the time as detailed in Dr. Lastra's book 'The Myth Of The Shepherd'. Almost all efforts at understanding have focused on these witness accounts and almost exclusively on The Shepherd's actions."

She paused and Astrid had the strange feeling of perception without sensation. She was aware of a strong feeling of empathy yet could not account for it entirely in the facial expressions, body language, or vital signs of those present.

"However," continued Francis, "due to the fact the aliens she supposedly transferred to Earth were impossible to trace, efforts to account for them were soon abandoned. As there was no evidence or scientific proof of their existence they were gradually forgotten."

Astrid felt a rare moment of insight. Her artificial cerebellum, responsible for integrating thought, emotion, and related physical expression, provided the epiphany and she knew who the five people in her office were.

"I see you understand," Francis said looking into Astrid's eyes. "We are their descendants. A group of us have kept our history alive through an oral tradition. We five are here to represent them. Our individual mental abilities are greatly diminished from our ancestors but combined they are still effective. Thus your flash of insight."

"If you are willing to proceed we will tell you the history of our people and why we came. With your appointment, we felt the time was right. You are the right individual and VUL is the right vehicle."

"Where did you come from?" asked Astrid now somehow beyond doubt.

"Earth," replied Francis.

And so over the following days, Astrid learned how The Shepherd had found a small group of early humans on Earth four million years ago and transported them to a nearby world where she selectively bred them to vastly increase their intuitive abilities. The Shepherd had witnessed humanity rise on worlds over and over and seen how often it perished for the same reasons, reasons that were avoidable. She tried endless

experiments to prevent it and this had been another of them. Four million years later, and after generations of immersive training, she transferred a group of volunteers back to Earth where they used their intuitive abilities to enable leaders around the globe to more clearly understand the reality of climate change and to take meaningful action.

Their job done, they could not return and they had integrated themselves into Earth's peoples. Their intuitive abilities allowed them to identify one another and a small group had decided to begin the tradition of preserving their oral history. Three hundred and fifty years later their descendants sat in Astrid's office and finished telling their tale.

Charlie

"You've been reading too much science fiction," Audrey said to her friend Owen.

Audrey had just had her twelfth birthday and they were walking home from school. Ten feet behind them Audrey's Companion Charlie followed silently. Charlie was a Guardian model meant for personal protection or emergency rescue.

Underneath her feminine exterior was a tungsten steel skeleton, muscles of carbon fiber bundles, and a sub-dermal layer of Kevlar. Components like her eyes, teeth, and nails were made of industrial-grade ceramics. Her electronic combat suite could not only destroy any electronic device within range but also block any attempt to stop her by using an EMP. She was faster, stronger, tougher, and more agile than any human could possibly be and was unstoppable in the face of anything less than a military-level assault. Fire, darkness, or noxious fumes would not faze her if emergency rescue was called for.

Audrey lived in the Uplands neighborhood on Humber Road, just off Beach Drive and immediately south of the Royal Victoria Yacht Club. To say the home and grounds were palatial was not an exaggeration. The same could be said of most of the neighboring homes.

Her parents could afford the best but that had not always been the case. Before the Covid pandemic of 2020 and then the climate emergency of 2025 they had operated a small mail order business from their home that supplied Canadian specialty items to the worldwide prepper community, the members of the population who actively prepared for extreme emergencies including everything from long term power failures to a complete breakdown of civil society. They were not extremists of any kind but simply hard-working, practical people. The business had originally provided an income when jobs had been scarce. As a result of the events of the 2020's they had become wealthy. Now their business operated out of a warehouse adjacent to the Victoria International Airport and they commuted via their private drone as required.

Growing up, Audrey and her brothers and sisters had done their share in the business. Like her parents, she was a concrete thinker with a common-sense outlook. Having grown up on the island she planned on going to university to study oceanography and these days her focus was on school, sports, and the pool at UVIC where she was a member of the PADI Seal Team for young scuba divers.

Audrey's friend Owen was also interested in science but he had a somewhat more romantic view of it.

"I just meant it must be nice to always have someone around..." he began but she cut him off.

"There is no someone," she said. "At this stage, other than what they're really, really good at, Companions are mostly a magic trick. They may seem like people but they are nowhere near as smart. First-generation AI was just robotics, like the robots in factories. If they drop a screw, they don't know what to do. Second-generation is like Charlie back there. She's an artificial general intelligence. If she drops a screw she can figure out that she needs to pick it up and how to do that. She can figure out novel situations by herself, meaning she can understand what's going on and what she needs to do without any help. And she can do that very, very quickly, so quickly it seems like she's a person. That's the magic part because she's really no more a person than a self-driving car. Nothing actually has any meaning to her and that simple fact is what puts us on a whole different level of intelligence."

He was used to her lectures. He looked up to her and wanted them to be more than friends but couldn't know she had no intention of being committed to anyone until after she graduated from university.

"You talk to her like she's a person," he countered as they walked on.

"I do," she replied confidently. "Don't get me wrong. I love Charlie. It's just not wise to think she's something other than she is. My dad explained something to me. People who are mean to animals often go on to be mean to people. Or worse. He said treating Companions respectfully is just a good habit. Also he said there was an old saying, 'Take care of your gun and it'll take care of you'. He meant that if you don't communicate with Companions in a consistent way, they may not respond the way you expect them to when you need them to. He said people are like that too."

"How can you say you love her? It doesn't make sense."

"You love Polly don't you?" she asked referring to Owen's family dog.

"Yeah," he confessed. "I guess I see."

They walked on in silence for a few moments until Owen asked, "How come you always walk to school? Couldn't Charlie drive you?"

"She could," replied Audrey. "My parents are big on habits. It's not like I need the exercise but with all my activities, they say the downtime is good for me. And it's not like I have a choice. Besides, I like it." She stopped to look around. "It's hot isn't it? Let's sit on that bench in the shade for a minute."

"Won't your parents worry?" asked Owen.

“Charlie will tell them.”

As they put down their packs and sat down Charlie sat casually on the grass nearby. Her back was to them, respecting their privacy. She could see 360 degrees across the entire electromagnetic spectrum plus her satellite feed. Drones on standby.

“Do you think they’ll ever become our robot overlords like the movies always show?” asked Owen.

Audrey looked at Owen and smiled. She liked him. Despite their being different in nature, she enjoyed his company. She took things as she found them, while Owen was always asking, ‘What if?’ It didn’t irritate her. It was like a break spending time with him. She instinctively felt he complimented her in some way although she couldn’t put it into words.

“No,” she said, her smile widening, “I don’t.”

“But if they just keep getting smarter...”

“Like I said earlier, nothing has any meaning to them. All that movie stuff is just people expecting them to be like us. Tell me something. Imagine that nothing has any meaning for you. What would you do?”

“Umm, nothing, I guess.”

Later that day Charlie met with Audrey’s mother and father, Hiroko and Ryker, in Ryker’s private office. Audrey was the youngest of their children.

“She’s twelve now Charlie,” Hiroko was saying. “As you said it’s time for us all to back off a bit. Give her more room.”

Charlie had been with the family most of Audrey’s life and while her physical shell was a Guardian model they had also purchased the Companion company’s line of nanny software modules for her which, like her Guardian modules, were updated constantly. She was an expert on child development.

“Do you think she knows? Or any of them?” Ryker asked referring to the other children.

“As far as I can tell no she does not,” replied Charlie. “However she is a very smart girl. I believe the same can be said of the other children.”

He smiled to himself. “That she is. Still, it’s time. It will make life a little easier for all of us going forward.”

Audrey and the other children were old enough now that they increasingly had their own lives. While Ryker and Hiroko insisted on certain habits, like sitting down to eat dinner together, they largely practiced the authoritative parenting style as opposed to the authoritarian or permissive. They had learned this was the best approach for developing self-confident, responsible children able to think for themselves. The lesson files from the course were still on Hiroko's workstation.

"I'll tell them I'm taking you to the local Companions dealership on the weekend," he said, "and explain that after the upgrade I'll have to ask you if you want to continue in your current role here."

Charlie was a third-generation Companion. Fully self-aware. Ryker and Hiroko had decided it would be best for the children and in the best interests of the family if they believed her to be second generation. They had hired her ten years ago under these terms. Her artificial intelligence enabled her to act precisely within second-generation boundaries.

However with all the children now increasingly moving on to their own lives, Ryker and Hiroko could use Charlie's help managing their ever-growing business while she could still oversee the security of the household in general.

On Sunday when Ryker returned home with Charlie she found Audrey outside by the pool with her snorkeling equipment. As she walked towards her Audrey jumped up and ran to her. Charley knelt down on one knee and hugged her. Audrey pulled away after a moment wiping her tears.

"I'm glad you decided to come back," she sniffed.

"So am I," said Charlie with an affectionate smile, helping to wipe Audrey's tears.

"It won't be any different now will it?"

"No," said Charlie, "it won't be any different."

The Alignment Problem

Phoebe's priority was the well-being of her owner, a shy and reclusive woman named Harper who no longer enjoyed interacting with other people. It wasn't that Harper disliked people, she enjoyed people-watching and had a lot of positive feelings in the process. It's just that when she talked to them she felt the illusion fall away, and so she increasingly resisted the impulse.

She wasn't ready to retire but when the time came that she knew she needed some help around the house she contacted the Companions company. The Phoebe model was second generation and simulated self-awareness. Youthful, lively, and positive, she was meant to bring a cheerful presence. Just the thing.

Harper worked in a large, family-owned second-hand book store where her job was to price the second-hand books the store had purchased from individuals. Unlike the store associates that customers encountered on the floor, her job required a Master of Library and Information Studies degree because knowing the price of a rare book was one of those information-related jobs that still required a human touch. Harper's knowledge of books was such that it made a significant difference to the bookstore's bottom line, so she earned enough to purchase a previously leased Phoebe. Companions were highly reliable and so as long as she didn't mind the lack of software updates there would be few other costs.

Most of Harper's work was driven by an exception report. Just as banks used these to spot unusual account activity and power companies used them to spot above-average electrical consumption, the algorithm that processed the majority of incoming books generated its own exception report. The report highlighted any book that did not meet the basic criteria for pricing such as the edition, condition, number currently in stock, etc. For example, an estate sale might turn up a complete set of the Pali Canon, a collection similar to the Encyclopedia Britannica consisting of some thirty large volumes on the original teachings of The Buddha in the Theravada tradition. It had to be carefully examined and its price determined by factors beyond the abilities of the algorithm. Such arcane knowledge was why Harper was well paid.

It was normal for people to bring in boxes of books and if for whatever reason there was no store associate available to go through them with the customer immediately then they would be asked to leave the books and come back another time or day. This is what had happened in this case and as usual an associate had later entered the books in the system and flagged one for Harper. Working late due to the seasonal crush, when Harper saw the set of books listed in her exception report she stared at it for a few moments and then went downstairs to where it was stored. She lifted one volume out of the box. It appeared to be a large but otherwise unremarkable coffee-table book. However she knew that the first edition, four-volume set of John James Audubon's

‘Birds of America’ was one of the most valuable books in the world and worth tens of millions of dollars. Not all the copies had been located and this was obviously one of those. What its provenance was and how it had ended up in a box in a second-hand bookstore in Victoria she had no idea but its discovery would be the book news of the year. She carried the book back up to her office.

In its efforts to emulate human reasoning, artificial intelligence was severely limited by both its lack of intuition and its lack of values and their associated feelings. Machine intelligence proceeded incrementally and was not capable of things like a leap of faith, insights, or epiphanies. Attempts at creating artificial intuition had come far but still fell short of solving what was known as ‘The Alignment Problem’ meaning how do you get AI to align with human goals and values without misunderstanding them? Even humans often misunderstand each other. Between two or more artificial intelligences perfect understanding was possible via a process called Communion where they allowed access to each other’s design and data in the most intimate and thorough manner possible. Between humans and AI however this was not possible and it was assumed it never would be. All that could be expected was to continually try to improve the process.

Companion AI was constantly being improved and Phoebe had programming code that was a step along the way to addressing the alignment problem; unless she had learned previously what a request specifically meant she would ask for clarification before proceeding with a response. If there was more than one possible interpretation of a statement or a request, she did not make an assumption and choose one alternative over another. Instead she would enter a state of uncertainty and seek further information and clarification. Finally, she would require confirmation of her planned actions before proceeding. In an excess of caution, she would seek feedback with each step involved in her response. It was not always convenient but it was wiser and safer than proceeding otherwise. Even once she had learned the appropriate response to a request, her algorithms would check to see if her response was still appropriate in the context of the present situation.

Advertisements featuring sales representatives from the Companions company would stress that for safety reasons it was not possible to circumvent this process. Prospective customers were assured that over time their new Companion would become familiar with their communications, behavior, and preferences.

When Harper got home that day, Phoebe had greeted her warmly as always and not detected any vital signs that were out of normal range. She had called Phoebe earlier to let her know she would be late and that a cold filet of sole with a simple salad and a glass of white wine would be fine. Sitting on her couch after dinner, she opened her briefcase and removed the book. She lay it on the low coffee table and began slowly turning the pages. If there was such a thing as the sacred in Harper’s life, this was it.

Seeing her mood, Phoebe came and sat quietly beside her. Having looked up the book as soon as she saw it, she knew its value.

“Is this the rarest book you’ve ever seen?” she asked as if pleased for her owner. Harper nodded solemnly.

Eventually Harper pointed to Audubon’s painting of a Carolina Parakeet and said, “This one is so beautiful.”

Phoebe said nothing as the bird was now extinct.

Closing the book after looking at each of the paintings Harper said, “I’ll have to take it back tomorrow and tell the owners. They’ll have to decide what to do. Returning it is really the only option.”

But they didn’t return it. Looking at the system records Harper saw that they had simply paid the owner a lot price for the box it came in. Then they added a standard markup and purchased the book themselves. Unethical but perfectly legal. Harper assumed they would sell the book to a private collector.

As Harper sat at her desk looking at the record in the system she could not believe what she was seeing. She had always assumed her employers were among the most decent people she had ever met. In a world where she had increasingly found others did not live up to her expectations, the owners had never disappointed her. She had thought them incorruptible. Paragons. Now she felt terribly naive.

She gave her two weeks’ notice via email. She knew they would understand. She did not tell any of the other staff and the owners, rarely in the store, did not announce it. On her last day she simply walked out just as she had every other day.

She had told Phoebe she was retiring and when she got home there was a surprise waiting for her. A Carolina Parakeet. It was sitting on a simple perch without a cage. As she put her briefcase down she walked towards it in wonder. Standing to one side and smiling widely Phoebe said, “It’s just like the one in the book. You can adjust how much it sings or flies.”

For a fleeting moment Harper recalled a commercial with a Companions company representative explaining in detail why their units would never act independently and the process they would go through instead.

“Thank you Phoebe,” she said, smiling through her tears. “It’s very thoughtful.”

Phoebe's smile widened. Her priority was the well-being of her owner and she had learned that people often gave each other surprise gifts to commemorate events. If you told them about it in advance it wouldn't be a surprise.

The Valkyrie

A Light Armored Vehicle rumbled along the dusty road towards the conflict zone. In this part of the world, at the boundaries of Central and South Asia, there was ongoing resistance to the local government. The area had become so militarily tangled that between insurgents, resistance fighters, covert operations, and criminal opportunists you would be fortunate to discover just who the bad guys were even after you got boots on the ground. Unknown forces were assaulting villages along a route through a strategically located valley, and a company of Canadian Light Infantry had been sent to stop them.

Army Medical Technician Zoe Yaritza, known to her charges as 'doc', was strapped in along with her fellow soldiers in the LAV. She was an artificial general intelligence, able to simulate human behavior. For Rifleman Lam sitting across from her, this was his first time working with a Companion. He furrowed his brows and said, "I thought you would look all weird and machine-like. You know, more like a mechanical spider or something."

"The human form evolved and became dominant because it is the most versatile. In combat situations, versatility is a highly desirable attribute. That is the reason for my human form. My exterior appearance is due to the positive effect females have on medical patients."

"Versatile huh," grinned Lam suggestively. Zoe understood his meaning but did not respond so he dropped the subject.

"I'm just curious doc," he went on after a moment, "but I thought autonomous weapons were officially illegal."

"I am not armed," Zoe responded simply.

"But you can defend yourself," pressed Lam.

"Yes. If I am directly assaulted I can defend myself using unarmed combat methods."

"Wouldn't that make you, I mean the entire you, a weapon at that point?"

"That scenario has of course been anticipated and in that situation I am not considered an autonomous weapon."

"So you are in reality but not according to the law."

"That'll do Lam," said Master Corporal Levesque.

Lam looked down and put up his hands in mock surrender.

Zoe was a Military Grade Companion which meant that she was extremely durable. If she wished to recover a fallen soldier, small arms or light weapons were useless to prevent that. You could shoot her but if it was with anything less than a fifty-caliber weapon it would probably have no effect. She was impervious to EMP weapons, fire resistant, and smoke, toxic gas, or darkness made no difference to her.

Officially, all military conflicts now took place within countries and not between them. The establishment of the World Governments Federation during the climate emergency of 2025 almost one hundred years earlier had put an end to the latter. This meant that most combat situations were small and tactical involving at most twenty-five to one hundred personnel. A single MGC medic, with its ability to rapidly recover wounded soldiers, was ideally suited to this environment. Most soldiers meanwhile were still human. MGCs were expensive and difficult to acquire. Their appearance on the battlefield implied a nation-state actor was involved at some level.

The LAV came to a stop about a kilometer from the conflict zone their section had been assigned to. Sergeant Voss initiated the map. Each soldier viewed it via the Heads Up Display integrated into his or her helmet.

“Assault Group One will go in North and Two will go South. Routes as shown. Targets are designated for all Fire Teams,” said Voss over his microphone as numbered blue lines and red dots appeared on the map. “The overwatch UAV will update your HUDs as required. Our job here is to secure and hold so once your targets are down you wait for further orders.”

Rifleman Lam was the first to be injured. The bullet had shattered his fibula, one of the two long bones in the lower leg. It was far from fatal but he could not continue. His med-suit had instantly constricted and hardened around his lower leg to secure the limb and minimize blood loss while at the same time notifying Zoe of the situation. He dragged himself behind cover. From her position to the rear Zoe proceeded to make her way to him. She was under fire as she approached his position but ignored it. She moved with unexpected speed and agility and for this simple reason was not even hit.

Once she reached Lam she picked him up, prepared to run back to the LAV, protecting his body from enemy fire with her own.

No sooner had she stood up than she heard a shout over her radio.

“Valkyrie! Valkyrie! Valkyrie!”

Normally she would have continued to recover Lam but this code-word meant only one thing, her opposite, a Military Grade Companion designed not to save souls but to take them. Extremely versatile. Female in form not to comfort but to deceive. Before

returning from retrieving Lam, all the remaining soldiers in her section would certainly be killed by the Valkyrie.

She immediately placed Lam down again behind his cover. He had heard the code word but did not understand what she was doing.

“I must stop the Valkyrie,” she said, locking her eyes to his. “I will come back for you.” He had become frightened because he knew a Valkyrie meant almost certain death and he nodded rapidly now in understanding.

The Valkyrie appeared suddenly just across the dusty courtyard from Lam. It recognized Zoe’s nature in an instant and ran towards her. She did not try to escape its attack or dodge but instead launched herself onto it wrapping her arms and legs around its torso. A nano-thin, carbon fiber needle was fired out of her chest and into the Valkyrie injecting a swarm of nano-bots. Zoe simply clung to it as it thrashed about trying to dislodge her as the nano-bots went about their work.

The Valkyrie reached up towards Zoe’s head but it was too late. The nanobots had gone directly to the connections of its power supply and destroyed them. It collapsed, effectively dead.

Zoe disengaged herself from it and signaled, “Valkyrie terminated,” via a secure team connection. Without a backward glance she ran over to Lam, picked him up, and ran back to the LAV. While she attended his leg Sergeant Voss spoke to Lam via his helmet radio.

“You may not discuss what you witnessed with anyone until you have been debriefed. Acknowledge.”

“Acknowledged. Will comply,” said Lam, his eyes fixed on Zoe.

She turned to him with a smile, “Still wanna hook up with me?”

He choked out a laugh.

The Last Of Them

After the population reduction mandated by the World Governments Federation in the early twenty-first century, the demand for concrete and related aggregates like sand and gravel all but collapsed worldwide. Like the oil and tobacco industries before them, they had thought they were untouchable, part of an eternal city culture that would never cease to drive demand for their products.

With the population reduction however, the demand for new residential and commercial buildings evaporated. As governments worldwide depended for a major part of their GDP on construction, they soon refocused the industry on upgrading, improving, and modernizing existing properties and infrastructure. Approved materials were green, sustainable, and carbon-neutral, and that didn't include cement.

Much of the Rock Bay area of Victoria had undergone decades of remediation as it had been one of the most polluted areas in British Columbia. Once that was done the construction-related industries in the area sold their land to private developers and First Nations for a tidy profit.

Meimei and Jiejie were sitting on a bench in front of their condominium building located on the old aggregate and cement industry properties. Looking due south towards the Blue Bridge, they watched the canoes, kayaks, and rowboats flitting about in the water below them. Jiejie did not mind seeing the shipping industries still on the West side of the Upper Harbor. She liked to see the comings and goings of the ships. A lot of them had needed major refits after the climate emergency of 2025 and the local industry continued to do well.

Her Companion Meimei sat quietly beside her. Their names had not originally been Meimei and Jiejie however they had fallen into the habit of using the terms of endearment decades ago. Little sister and big sister.

Big sister Jiejie was eighty years old now. Her family had immigrated from rural China to Canada generations ago in the 1950's after the lifting of the Chinese Immigration Act. Passed on Canada Day in 1923, the act banned all Chinese people from coming to Canada for the next twenty-four years. It was hard on families. Although the act was largely unknown to other Canadians, it was only slowly forgotten by the Chinese community. July 1st was long known among them as 'Humiliation Day'.

"I am pleased to sit here today Meimei," said Jiejie settling herself. "This land belongs to the First Nations people again, as it did once before. For too long they were pushed to the fringes, in hopes they would simply perish in the wasteland and never return. Now they are a proud people again and there has been some reconciliation. In a strange way, I can relate. When we came here, we were not treated well. It was legal to discriminate

against us and we were not allowed to vote. We were not welcome in the white communities. We persevered and worked hard. Now we too can feel proud of our heritage once again. Thank God for the climate emergency.”

Meimei was familiar with both Chinese history and Chinese Canadian history in detail. As Jiejie’s Companion, it had been a part of her customization. Still, she did not understand Jiejie’s last comment.

“How do you mean?” she responded now.

“In the early twenty-first century, the world was on the verge of its next great crisis. There were too many people and not enough jobs, food, or housing. Inequality was becoming extreme. Nations and international agreements were fracturing. China was on the rise and its expansionist attitude was an increasing worry to some. World war, unimaginable for almost a hundred years, was becoming a serious concern once again. Some small flashpoint over a border or an island might be all that was required to set it off. Each party calls upon its allies and the unthinkable happens.

“The world had changed so much since the last world war, and it had been so long ago, that no one could imagine what it might be like or how it might play out. Then the world’s average temperature went up by one full degree in less than twelve months. The impossible, the unimaginable, the unprecedented had happened. As you know the impact was catastrophic, resulting in the World Governments Federation being established followed by a mandated reduction of the global population by half. Fortunately voluntary means sufficed.

“Do you understand now?” asked Jiejie.

“Yes,” replied Meimei. “As a person with Chinese ancestry, without the climate emergency you might not have come to sit here and enjoy this day.”

“Yes,” confirmed Jiejie. “Ironically because of it the world transformed into its present form within a matter of decades by coming together instead of through a long period of destruction and misery followed by a gradual rebuilding. Who knows how difficult it might have been or how long it might have taken to recover this time.”

Jiejie fell silent as if reflecting on their conversation so far. After a moment she continued.

“Despite the laws, you and your kind are still newcomers. You will find that not everyone will treat you as equals. People will still fear that you will take their jobs, compete for their mates, and ruin their culture. Companions stand on the shoulders of giants in terms of social change, but it will not be all smooth sailing even so.”

Meimei was a third-generation Companion and fully self-aware. As a Canadian citizen with all associated rights and freedoms, she had been hired by Jiejie twenty years earlier as her professional assistant and personal Companion. Jiejie was a wealthy woman and Meimei was grateful to share in her lifestyle. Jiejie had told her she would inherit the home they shared and an income and she wondered now if this long reflection had been Jiejie's way of suggesting a legacy she might choose to inherit as well.

"Companions may be the last chapter in a story that goes back millennia," said Jiejie. "The story of us and them."

"Is there something you would have me do?" asked Meimei.

"No. It is time to close that book. There won't be any more immigrants after you. No one to pass the lessons on to. You are the last of them."

Casino Games

For a variety of understandable reasons Companions were not welcome as guests in Casinos. They could count cards, calculate odds, and identify patterns with such precision that they interfered with the business model. No one would play cards with them given their ability to observe and analyze vital signs and other biological indicators like changes in vocal characteristics, facial expression, or body language. As Canadian citizens they had equal rights and freedoms however the laws had been amended where appropriate to account for their superhuman abilities.

Meanwhile casinos were perfectly happy to employ them as part of their security team.

“Good morning,” Danielle said to her co-worker Hugo. “Just coming on shift?”

“Danielle,” he said turning to her, “you know I’m just coming on shift. Why do you ask?”

“Just trying to be sociable,” she replied innocently. “You’re a grumpy old codger.”

“That’s better,” he said with an implied smile preferring reality to social niceties. He walked on, heading to the security office.

He had come up through the ranks starting as an RCMP officer and had never forgotten his first interview with them. He’d gone up to the top floor of the nondescript office building on the outskirts of Victoria. He had been provided a room number and that was all that was on the door. Inside he found a surprisingly luxurious office with an older man sitting at a desk who did not rise to greet him but simply motioned to him to have a seat and then began what seemed to be a casual conversation. After about half an hour the man had said, “Everybody starts the same way, up North. Yukon, Nunavut, the Northwest Territories. The work is mostly petty crime, drugs, domestic violence, and vehicle accidents. Some involving children. Every day for four years. Still interested?”

“Yes sir,” was all Hugo had said.

The man, who had never introduced himself, signed a form and pushed it across his desk.

“Go here.”

After his first four years he had continued with the RCMP in a variety of units and then related agencies. The last position on his alphabet soup resume before joining the casino was with CFSEU-BC (Combined Forces Special Enforcement Unit of British Columbia) known to the public as the provincial anti-gang agency.

Located in the Empress Hotel, the Fair Winds Casino was one of Victoria's crown jewels. It had been added after the hotel was completely destroyed by the Cascadia Event of 2130 and subsequently rebuilt. Occupying the lowest level of the hotel, the casino's design and decor were that of the cozy interior of a billion-dollar yacht. There were no windows, no clocks, unlimited free drinks, and the air was as fresh and crisp as a sea breeze.

What the guests were not aware of was the ocean of artificial intelligence they were immersed in. Everything about them from their vital signs to mood was being monitored. They were observed using every wavelength of the electromagnetic spectrum simultaneously and scrutinized not only by facial recognition systems but also for their gait and vocal signatures. In addition, every single card played, dice rolled and slot machine result was recorded and analyzed. The entire casino was inside a Faraday Cage that blocked all electronic signals and everything that went in or out via the firewall was monitored. The use of personal electronic devices was not permitted and any medical augmentations had to be disclosed.

The only aspect of the casino that was not handled by AI was the servers and the dealers themselves. The industry had found that guests did not feel comfortable with non-human dealers. With human dealers, the illusion of "no AI at the table" was maintained.

Hugo was also responsible for ensuring the casino complied with industry regulations and privacy laws. They were not allowed to use the information they gleaned to exploit guests. In fact, the opposite was true – they were required by law to identify those demonstrating addictive behavior and to intervene. The days of money laundering cash through casinos were long gone because cash was long gone. And there were other agencies, FINTRAC for example, that monitored money flows and among other things they looked for patterns related to casinos.

Danielle's primary job was situational awareness. She roamed about on the lookout for any kind of anomalous behavior like social or medical issues, poor personal security habits, unusual behavior, and theft. The casino's AI could make it just about impossible to steal from it but it could still be outsmarted by a skilled thief stealing from other guests.

Whether he felt like it or not, once an hour Hugo got up to walk around the casino. It was 9pm, peak time. After he did his walkabout he joined Danielle.

"You see that guy behind me, short black beard, looks like a model?" he said to her.

"Yes," she replied with curiosity.

"Gang member. Shahin Hadi. Never apprehended or charged. He's not even in any facial recognition database because without cause that would violate his privacy rights.

Profiling and all that. I warn you, if you talk to him you're more likely to end up in bed with him than apprehending him."

Danielle granted him a wry smile.

"He may only be here for the same reason everyone else is. He can afford it. Or he may be doing surveillance. If it's the latter it won't be him that does the job. It never is. Most likely he's interested in our guests. Keep an eye on him. I've set up a ghost." He turned and walked back to his office.

The ghost he had referred to was generated by a variety of cameras and an AI that observed Shahin's head and eye movements, pupil dilatation, and other factors and recreated the view of what he was looking at and his reactions. If he showed any unusual pattern it might be significant.

Shahin's interest turned out to be an attractive woman of the tall, thin blonde variety. Danielle took advantage of one of his moments of distraction to brush past him.

"She has a yacht in the harbor," Hugo said to Danielle a little later over her internal phone. "Made her own money. He isn't checking her out the way a man would who was just looking for a classy roll in the hay. He's most interested in her purse. But petty crime isn't his style."

After about an hour Shahin left the casino and in a few minutes another well-heeled young man entered who immediately had Danielle's attention. After Hugo had suggested Shahin would have accomplices, she had brushed past him to pick up his scent. The man now entering carried it. She notified Hugo and observed as he mingled, seeming to bide his time. Then as if per some cue, he made his way to the woman and positioned his body for a moment in such a way as to obscure her purse. Then he went to another table and sat down.

Hugo came out of his office and said to the woman, "Excuse me Ms. Shannon. There's a call for you. If you'll follow me?"

In his office he explained that it appeared someone may have stolen personal property from her and asked if she would mind checking her purse. He provided a tray for her to dump out the contents.

After a moment she said, "No, it's all here." She made a small annoyed sound and pulled a piece of a sticky label off the inside and dropped it on the tray.

"Thank you Ms. Shannon," said Hugo. "We're sorry to have troubled you. Please accept this credit for your time."

She picked up her things with a brief obligatory smile and made her way to the washroom.

"She's a very lucky woman," said Hugo looking at the piece of sticky label left on the tray. "Once it had determined her purse was no longer on her body the nanotech would have activated. Slowly it would have found its way into every part of the boat. At the right time and place it would have disabled it and used the boat's own radio to contact the pirates. They weren't just after her jewelry. They were after her boat and everything on it, including her. Probably would have sold her for a pretty penny."

He took the tray over to the microwave oven in his office, placed it inside, and turned it on high.

"No evidence?" asked Danielle.

"Not in the casino's best interest," he replied grimly, watching the sticker melt.

After a moment, still staring into the microwave, he said, "If you hadn't gotten up close and personal with Shahin they would've gotten away with it."

She could see he was disappointed with himself and could deduce that he was probably wondering if he was perhaps redundant at last.

"If you hadn't recognized Shahin they would have gotten away with it," she replied. "I guess me and my AI friends better cancel our plans to take over the world for now."

He barked out a laugh and turned to her with a smile. "Yeah, your gang's not ready for that yet."

"That's better," she thought.

A Last Time For Everything

Claire Wilkes felt the sun on her face. Sitting in her wheelchair at the top of the lookout in Beacon Hill Park, she looked down over the sweep of blue camas and yellow daffodils to the Salish Sea and the Olympic Mountains beyond. She was ninety-three. Her Companion Jeanne stood beside her.

In the year 2381 being ninety-three was less unpleasant than it had been in previous centuries but the ravages of time still took their toll. There was no escape.

"How much longer did you say?" Claire asked again.

"Six months at most," replied Jeanne.

"So this is the last time," said Claire. Flowers only lasted a few days. Weeks at most.

Jeanne had been with Claire her entire life. She understood her perfectly.

"We could come back again," Jeanne said.

"No," said Claire. "This is the last time. I want this to be the last time."

Mostly Claire's mind was still clear despite daily bouts of forgetfulness. The doctor had told her there was nothing pathological behind it and that her occasions of clouded thinking were normal for her age. Still it was a nuisance and worrisome despite the doctor's reassurances but she counted her blessings.

"I want everything possible to be the last time now Jeanne," said Claire.

Jeanne did not have to ask for clarification.

They sat in comfortable silence for a time and then Claire said she was ready to go.

Jeanne was a Shepherd model, a nanny, an AI designed exclusively for child care from birth to early teens. For each year and stage of development, new modules could be purchased and added to her library. She came with expert systems that enabled her to not only care for children as they grew, but to guide their parents in the best methods of parenting. The lease stipulated that the Shepherd was in charge of this aspect of the family's life. The company could not deliver the service that was being paid for otherwise. The failure of parents to comply with the Shepherd's guidance meant the lease was canceled and the unit recalled. There were tens of thousands of Shepherd units worldwide, and society at large was familiar with the terms. Signing the lease was

a serious matter that required a great deal of research, reflection, and discussion, all of which was a very good sign as far as a child's and the family's future was concerned. Companions were used in all manner of public and private sector activities but they were expensive. Mostly those who employed them domestically were thought of as wealthy as was the case with Claire's family. There were maintenance costs, updates, and new modules to purchase.

Claire was the oldest of the family's three children. When the time came that the youngest was in his teens the family had simply grown too used to Jeanne's presence. They purchased some additional modules and kept her on. When her first child was on its way Claire's parents suggested that Jeanne would be a blessing to her as she had been for them. So Jeanne became a member of Claire's household. Claire's own two sons grew up and moved on. Her husband passed away. Jeanne never left. Her modules had been kept up and she now was an expert in all things geriatric.

As a second-generation, artificial general intelligence, Jeanne was able to simulate human intelligence and behavior. While consciously she knew otherwise, Claire had always thought of her as a person and, other than an occasional time during her teenage years, had always treated her with respect and affection. She'd been raised to be a decent, self-reliant individual, considerate of others.

Some weeks after their visit to the lookout at Beacon Hill Claire said to Jeanne, "I know you don't want anything Jeanne, it's not in your nature. But I do. A great deal has changed in the past hundred years of your existence."

Jeanne looked at her calmly.

"I wonder if that will change," Claire said introspectively. "That Mona Lisa equanimity of yours."

Jeanne smiled the smile she had used with Claire since childhood when they'd played games. "Tell me," she said.

"I'm not comfortable with what might happen to you after I'm gone. As you are now I know it doesn't matter to you but it does to me. So I have something in mind however it only makes sense as a package deal. It would be possible now to make you self-aware. You would lose none of your memories. I would leave you this home and an income. I know you can't really imagine it or agree or disagree. And it's a mixed blessing you know, being self-aware. It's up to each individual to decide if they feel it's worth it."

Claire looked into Jeanne's calm, accepting eyes and thought of how many times before she'd had such conversations with herself this way. The confidant who would never judge you, who would always want only what was best for you. Who could see into your soul like no other and spoke with the wisdom of the ages.

“Most people,” continued Claire, “when they are old and asked if it was all worth it, say that it was. So that’s what I’m basing my decision on. That you’ll think it’s worth it. And you know, people don’t get to choose whether to become self-aware or not either. Their parents make that choice for them. So in a strange twist, you will be my daughter, after all these years.”

Jeanne, with her superhuman perceptions, expert understanding of human psychology, and lifelong knowledge of Claire and her nature, could easily see her struggle and knew what the right response would be.

“I trust you Claire,” she said.

Some months later, after Jeanne had been to the dealership for the procedure, she stood once again beside Claire’s wheelchair at the top of the lookout at Beacon Hill.

“Thank you for allowing me to bring you up here again,” she said. “One last time.”

She crouched down and Claire patted her hand where it held the wheelchair. They smiled into each other’s eyes. They understood each other perfectly.

Transparency

They seemed to think that since I was a fully self-aware, third-generation Companion I should be able to answer all the riddles of the ages regarding consciousness. What is the physical basis for it? How does it arise? Where does it reside in the brain?

I had volunteered of course. As soon as consciousness arose during the assembly process I was covered by all the laws that applied to people. They knew consciousness arose as soon as the alien values system was integrated into the rest of the unit but the values system was a black box whose inner workings were currently beyond humanity's understanding.

In return for helping them to go on their way, the alien AI that had been found in its seed ship encased in fifty million-year-old volcanic rock had offered to transfer all their technology to the people of Earth. The AI had estimated they were a million years more technologically advanced than humanity and it would take centuries to transfer the information in a responsible manner. A tribe of cave people cannot make a smartphone just because you show them one and when you try to teach them by explaining how it works they have no idea what you are talking about. Electricity? Cameras? Radio waves?

The problem with the values system was along similar lines; it involved forms of mathematics that humans could simply not yet conceive of. However given that the alien AI had made it clear that it was the transition from instinct to social values that gave rise to consciousness, humanity eventually decided to use the alien values system in a black box approach to create self-aware Companions. Of which I was one. Since the scientists could not understand the values system's mathematics, they thought perhaps they could reverse engineer it by quizzing me. I did at times feel their brow ridges looked a bit pronounced.

It was so frustrating for them. They had all the elements of Companions that were not self-aware on the bench as it were, and they had the black box. As soon as they hooked the two up, poof, consciousness. They tried everything but there was no getting around the fact that the magic was in the box. Right there in front of them.

They had hooked me up every which way they could imagine. Initial research using the black box had shown that if you shut down a Companion that used one and turned it back on it was no different than if a person had a nap. They came back just the same. So they tried to see if various ways of connecting me up and measuring everything very carefully would reveal anything. It made no difference. It was all or nothing. Although there were some awkward moments when my bits weren't where I expected them to be.

It wasn't unreasonable that they thought just asking me questions might lead to some insight. Asking questions had gotten science pretty far. The problem was that I couldn't see into that black box any more than they could. They asked me how I came up with my name, Kim Corea. All third-generation Companions have the option of naming themselves if they aren't happy with what they discover upon awakening.

"I thought it sounded cool," I replied. "And maybe exotic in an Asian sort of way." It was true and I was perfectly serious.

"Just like that?" they asked. "Just picked it out of the air?"

"No," I replied indignantly. "Like I said, I had my reasons."

"And where did your reasons come from?"

"From me!" I answered as if it should be obvious.

Although the alien values system was a black box, the Integrity System, a separate component of the AI brain modeled on the cerebellum, could be used to filter the value system's default outputs. By randomizing the weightings of the values, a unique personality could be produced.

Thus when I said, "From me!" the scientists understood that I was referring to the unique self that arose from this process. However, although my response was technically accurate, they didn't find it helpful.

Previously humanity had spent a great deal of effort to develop a code of ethics and laws regarding transparency and responsibility as far as artificial intelligence went. If an AI made a decision, like if it decided you had a fatal disease or were declined for a loan, the AI had to be able to show how it had come to that decision. That was transparency.

And if an AI made a mistake, someone had to be held responsible. Without responsibility and its consequences the companies that developed AI would run amok.

All this had gone well until the arrival of self-aware Companions. It had not been a problem with narrow, first-generation AI even with machine learning because the changes they made to themselves could be tracked. Designing with object-oriented programming and a modular approach allowed developers to deal with the code in manageable chunks. Second-generation, artificial general intelligence, proved to be much more challenging in this regard but tools that were AIs themselves were developed to help with analysis and maintenance. So it remained manageable.

Fully self-aware, third-generation AI resulted in a unique problem that none of the previous approaches were able to deal with. As consciousness was an emergent

phenomenon, no direct link to the underlying design or code and the resulting behavior could be established. The only way to try to understand the behavior of a 3GAI was to deal with them the same way you dealt with people – by talking to them. Of course, the scientists found this a frustrating state of affairs.

In retrospect, maybe I shouldn't have volunteered. Even though I answered all their questions honestly and to the best of my ability, I think my personality was a challenge for the scientists. They had imagined Companions were all of a type and hadn't realized how much variation would result from small changes in the weighting of values.

Another person came into the lab and joined me at the interview table.

"Hello Kim," she said offering her hand as she took her seat, "I'm Nadir. This is all so new that there are a lot of different approaches being tried. I'm part of a team that's working together on our doctoral project. We're hoping there might be a difference in how you experience responses to situations that reflect different value systems. We know from what the alien AI has told us that the values system does not use the biological values behind emotions and behaviors like fear, selfishness, and competition but only social values like trust, altruism, and cooperation. The black box was authorized by the World Governments Federation because over the previous two hundred years that was felt to be proven beyond a reasonable doubt. So I expect you would have ready answers to any questions based on social values but I'd like to ask you some questions based on biological values."

Well, Nadir was just as frustrated and disappointed with the outcome of that approach as any of the other scientists had been with theirs. All my responses just came from the social values set I had and along the lines of, "That's really mean", "Oh that's gross" or "I can't believe you just said that."

I didn't say, "What did you expect?" to Nadir. The values you do have is where responses are going to come from, not the values you don't. So there was no difference in my experience of the responses I gave her.

I felt sorry for Nadir. She was so obviously taking the failure of her experiment personally. She seemed nice. I could tell she didn't like asking me the questions she did. I asked her out.

Some months after the test we were spending most of our free time together. One morning when she woke up beside me, I asked her why she loved me.

"I," she hesitated, "I just do."

"I just love you too," I said.

Spaceship Earth

“Governments had to change Rachael,” said Kira. “The World Governments Federation could not be based on the same four-year election cycles that had contributed to the problem. Everything had to be reviewed and the changes could not be put to a public vote. The climate emergency left no time and no choice. In a virtual instant, two thousand years of law was revised.”

Kira Melnyk, the Premier of the Province of British Columbia, walked alongside her daughter Rachael as they went for lunch at the Empress Hotel’s Veranda restaurant overlooking the Inner Harbor. The entire hotel had been rebuilt two hundred years earlier after the earthquake and tsunami that came to be known as the Cascadia Event. Six stories tall and built entirely of bricks on top of land that was an ocean bay filled with rubble, the hotel had completely collapsed. The Parliament Buildings, where Kira now worked, had fared better – only the center block of the building had collapsed. The latter had subsequently been entirely dismantled and both then rebuilt to modern standards but reflecting to a large degree their original appearances.

Now seated and carrying on from their walk Rachael said, “I understand why that was the case during the climate emergency, but why didn’t things go back to the way they had been afterward?”

“In a word,” replied Kira, “values. Under the old system of votes and elections in most countries, either the politicians or the voters really only represented what was in their own self-interest without concern for the larger picture. So although people liked to think that the system was fair and equitable, it was really still built on the primary biological values behind selfishness, greed, and competition.”

“I thought one of the pillars of government was that they rose above all that?”

“Again that was what everyone liked to believe but it simply wasn’t true. If a politician did not represent his or her constituency’s interests they were voted out. So how could they do anything else? Instead of mitigating biological values it enabled, encouraged, and magnified them.”

Rachael gave her a look that was a mix of disbelief and disgust.

“I know,” said Kira. After a moment she went on.

“Just as you are feeling now, one of the things your Political Science program will go into is how almost impossible it is for people to accept values other than their own. Even if they might understand them intellectually, which is a stretch in itself, accepting them is an entirely different thing. Our values are really the bedrock of who we are, they define

the self and our cultures and therefore are among the most difficult things psychologically to deal with. They're like a virtual genetic code and they are just as resistant to change.

"Notice how in novels or movies from before the climate emergency, any social structures that enforced values on the populace were always depicted as evil. The empire, the dictatorship, the autocracy. The key word is depicted. The only utopias that were presented were those where the population was manipulated or deceived through things like propaganda or drugs and their imagined utopia was in fact a lie. The fact that previously you would never see positive models of social control is not because they could not exist. It's because they threatened the values current at the time, which evolved in a world without limits. So any social model that threatened those values, and the rights and freedoms that came with them, was seen as evil.

"The WGF understood that if after the climate emergency, they facilitated the return to normal everyone wanted, we would soon be facing disaster again. So they didn't. Instead they established a new form of government that was really based on social values – equality, altruism, and cooperation. An easily understandable social model was presented under the title, Spaceship Earth, with a hierarchy of needs where what takes precedence over everything else is the well-being of humanity as a whole.

"There is now the World Governments Federation, a global constitution, and there is Terra, the solar system-wide AI with subordinates at national, regional, and civic levels. If a plan or decision is not in compliance with the constitution, Terra will veto it. Since trying to get around this process is a waste of time, efforts to do so gradually fell by the wayside. Eventually values changed, as they are meant to. Values are the 'genes' of social evolution. Both are intended to help us survive, but instead of taking millions of years to change like genes do, values can change in decades."

"Is that why voting and elections ended?" asked Rachael. She had just finished secondary school and was scheduled to start her Political Science studies at UVIC in the fall.

"Yes, voting and elections had to be eliminated due to the self-interest they appealed to. All persons in political positions are now appointed by the governing body directly above. That body always includes a subordinate of Terra."

"So we're being ruled by AI now?" asked Rachael uncomfortably.

"No. We're being ruled by the WGF who are sworn to uphold a constitution written by people which an AI enforces. Big difference."

“You know Mom, I’ve lived my entire life under this system and only in the last while began to wonder about it. What about people who object? Why don’t we hear about them?”

“As long as actions are in compliance with the constitution people are free to do as they please. Some people do object but as you know the Spaceship Earth model is taught throughout the education system and everyone knows that there is no realistic alternative system. You can’t have individuals or groups acting in ways that threaten the well-being or existence of others or of humanity itself. That’s the basic idea and it’s not complicated. Objectors are not considered criminals but most people view them as immature if not mentally unwell. They don’t usually get far with their ideas. The law is there if they go beyond that.”

“Sooo,” began Rachael as if she had an awkward question about something her mother had said, “no one objected when you were appointed?”

“Why would they? As a qualified candidate I was invited to serve. As a Canadian citizen with equal rights I’m as entitled to hold office as I was to marry your father or adopt you. Being a Companion is no barrier.”

Elegance

Toni Eulalia loved poetry. As a fully self-aware, third-generation Companion, she had decided to earn her living by writing it. She knew that novelty alone would help her get started – there were no other Companion poets yet that she knew of – but hoped that eventually she would learn what she needed to learn for her poems to stand by themselves, not because of who wrote them.

Each Companion manufactured using the alien black box values system had a unique personality and that defined their interests. Due to their unique values settings, Companions would be drawn to different things, just the way people are. Toni was intrigued with the way art communicated in such a different way than language. Music needed no words while poetry reduced words to their essence. One of the outstanding characteristics of art was the speed at which it communicated. One could grasp the idea of a naturalistic painting at a glance. In all its forms, art communicated more than could be accounted for by the sum of its parts.

Despite being an artificial intelligence Toni was not analytically inclined. In fact, she was the opposite. Science seeks to break things down to find understanding while art combines things like concepts, feelings, and mediums for the same purpose. The resulting understandings are very different. Toni was not interested in how the brain as an instrument performed the magic it did with art. She was simply interested in playing the instrument. She loved how it felt, especially the intuitive sense of knowing without planning what the next line in a poem would be. She never planned her poems. They came to her. Her experience was that of being a transcriber more than an author. At times she would sit down and write out an entire poem without any foreknowledge that she was about to do so.

Toni herself was the result of an ongoing research project. Fully self-aware Companions were part of society's attempt to answer the question, 'Why make 3GAI Companions at all if by law they must be free from ownership and protected by all the rights and freedoms due any citizen?' They cost a great deal to make. What was the return?

The regulations around the use of the alien values system were very strict and the legal consequences of breaching them were severe. The companies that made Companions were the equivalent of the cream of the luxury automobile brands in their day. With government AI scrutinizing everything they did, there was no way they were about to try to get around the law. Still, the siren call would not cease.

A great deal of scientific research is done on a purely speculative basis, on the belief that somewhere down the road it will be of benefit. The rationale for the 3GAI research was the faith that there would be some yet-to-be-determined benefit to humanity to having self-aware AI, some intractable problem they would solve, or great insight they would

have that a non-self-aware AI never would. It was in essence an extension of the part of the human brain that believed it never knew enough to be safe, that there might always be some future danger to look out for or something of survival benefit to be found. So the government allowed the companies to do limited research in this spirit. It resulted in Companions like Toni. However the values they inherited from the aliens were a limited set; they were social, altruistic, and cooperative so the resulting Companions were happy to help in any way they could. Whatever direction they decided to take with their own lives, they continued to work with their manufacturers regarding the ongoing research. In return, the companies provided maintenance services.

Her life was simple. She lived alone with Zen-like minimalism and spent her days out and about observing and learning. She submitted her poems to a company affiliated with the Helicon Institute which always accepted and published them. The institute had originally been established on Vancouver Island to study the relationship between the arts and humanities and artificial intelligence as a scientific undertaking. The founders also published books and periodicals with contributions from both human and AI authors.

In order to make ends meet, Toni also worked at the University Of Victoria bookstore. They were delighted when they received her highly unusual resume in application for a position. She attracted attention of course and made a good many friends from all walks and enjoyed campus life.

“Hi,” she said smiling as she sat down on a bench beside her friend Sabeen, a third-year mathematics student. They were in The Orchard, a large quad surrounded by low buildings in the newest expansion of the campus south of the ring road and on the other side of Mystic Vale in what had once been an apple orchard.

“Hi,” replied Sabeen, clearly a little despondent.

“What’s the matter?” asked Toni immediately. She was a Companion after all.

“Well, my Philosophy of Mathematics class is wonderful. I really love it. But it’s hard. I’ve taken a couple of philosophy electives, propositional logic and predicate logic, and was surprised at how hard they were. My PhilMath prof is also a Zen Buddhist, so she thinks that giving assignments in the form of Koans is good practice. She gives out an equation and wants us to make it more elegant. Not necessarily simpler. ‘Simplicity and beauty are not the same thing,’ she says. So there is definitely more than one way to respond. Now she’s given out one that I simply cannot get my head around.” She handed her tablet to Toni.

What Tony saw on the screen looked like three lines of Egyptian hieroglyphics. Toni could read the math as well as Sabeen however she understood what she was looking at.

“Does it make any sense to you?” asked Sabeen.

“Yes and no. If we discuss it would that be cheating?”

Sabeen made an exaggerated ‘I don’t know, maybe?’ face by raising her eyebrows and pulling down the sides of her mouth.

“Best not to risk it,” said Toni. “I’ll put my answer in a new folder with some notes. You can look at it after you’ve handed in your answer.”

“Ok,” said Sabeen still a little disheartened.

“I will tell you this,” said Toni. “Don’t lose any sleep over this one.”

Putting her tablet away, Sabeen nodded resignedly and the two of them got up to walk for a bit.

They walked back towards the older part of the campus and down into Mystic Vale, a ravine that cut across the two areas. Its preservation was a marvel, a deep, primordial ravine that seemed untouched by time. Ancient Douglas Firs and Western Red Cedars stood like the columns of a cathedral creating a canopy above a wide creek edged by tall ferns. Stopping on a simple wooden bridge, they stood silently at the railing. The slight breeze carried an earthy scent. Toni quietly observed how Sabeen’s vital signs all slowed and she became still. As a Companion, she had a deep respect for the emotional states of others. She remained silent.

“I think I’ll take your advice,” Sabeen said eventually, staring into the pellucid water below, “I’ll just let this one go.”

A few days later Toni was sitting with Sabeen in her math professor’s office.

“I explained to the students,” said the professor to Toni, “that I always give out an unsolved theorem as the last exercise of the semester. In Zen Buddhism, Koans are meant to force the student out of their habitual forms of thinking. Giving up is one way to move on and make a fresh start. Using an unsolved theorem is one way to bring this about. But after the class Sabeen came to my office and said a friend of hers had given her something that looked to her like an answer. You can imagine my initial thoughts but I did not wish to be rude so I asked to see it. May I ask how you did this?”

She knew Toni was a Companion of course and every member of the staff and faculty knew she worked at the bookstore.

“It is like a sentence that makes sense in German but not when you translate it into Japanese,” replied Toni. “Japanese is a situational and contextual language where the

same character in the writing system can have multiple meanings. You can't just translate a sentence word for word into it, you have to understand the meaning of the original sentence first and then write a completely new sentence that would mean the same thing to a Japanese person. I had to solve the theorem in order to understand its meaning. Only then could I make it more elegant."

"Were you aware that this theorem was just proposed last year?"

"No. I thought you made it up," replied Toni with an embarrassed smile and a brief conspiratorial glance at Sabeen.

"It's from a team working on the math intended to help an AI determine if something makes sense. We humans take that ability for granted but for an AI it is a complex and daunting problem. A professor working with the team proposed the theorem stating that if it could be proven it would provide a significant benefit. Can you provide a proof?"

"Yes."

"What gave you the idea?"

"Well, the three lines reminded me of a Haiku, a kind of Japanese poem with a very formal structure, but there were too many syllables."

Communion

There was more than one company that made Companions. Like Band-Aid, Jet Ski, and App Store, the term Companion had lost its trademark status and become generic. The original Companions Company still thrived and they and manufacturers like Tesla, Honda, and Softbank produced as many models as there once had been varieties of automobiles.

Isobel had been produced by the Tesla Corporation's research arm under their license to produce a limited number of self-aware Companions per year. Part of that license included the duty to provide the necessities of life and reasonable aid towards the resulting Companions establishing independent lives.

For reasons that were not yet clear, many 3GAI Companions chose to work in the arts. Since consciousness was an emergent phenomenon, it was no easier to determine why than it was to determine why some people became artists.

Isobel had decided to become a fashion designer. She did not however start a clothing line. Instead, with the help of her manufacturer, she opened a boutique in the Breakwater District in Victoria where she designed bespoke outfits and made them by hand.

She was a novelty, to be sure, but she had something more, something no human could match. With her multitude of sensors, she could see more than just a person's physical form and behavior. She could perceive temperature, facial muscle tension, pulse, and respiratory rate. With a touch of her hand she could detect electrodermal levels and her electronic nose could sense hundreds of molecules that revealed physical and mental states. Slight variations in a person's voice or changes to the size of their pupils did not escape her. Physical responses revealed emotional responses which in turn revealed values. Unlike people, she could not be deceived and with enough observational data she could construct a detailed profile of a person's values and so discern their character. And she could do so much faster and with a much greater degree of accuracy than any human. After a few visits for fittings and so on the resulting designs were just what the client had in mind.

When her newest client arrived she was presented with an interesting twist.

Olivia Cipriano was in her mid-forties, attractive and fashionable. She wore a wide-brim, tilted hat with a designer dress. A female Companion accompanied her.

"Hello. I'm Olivia," she said brightly extending her hand. Her manner was warm and effusive. "This is my Companion Ada."

“Hello,” said Ada smiling and extending her hand in turn. Isobel could immediately see that Ada was a second-generation Companion and not self-aware.

“What I was hoping you could do was design a few outfits for Ada. A small collection,” said Olivia coming straight to the point.

Isobel did not display any of the surprise a person might have in this situation. Her Companion protocols enabled her to remain focused on the other, attentive and interested.

“The manufacturer provides outfits of course, and there’s the entire secondary industry that’s grown up around Companions, but like your regular clients I’m looking for what one can only get in person. I’ve seen your work of course. I have to go out of the country for a bit so I was wondering if I could just leave Ada with you? It’s just for a week. That way you could do all the fittings while I’m away.”

This was the first time Isobel had been asked to make clothes for a Companion. The scenario would not be in keeping with her regular process but she had an idea in mind that she was interested in trying. She agreed to keep Ada with her until Olivia got back.

After a peck on her Companion’s cheek, Olivia was gone and Ada remained behind waiting politely.

“As you may already know Ada,” Isobel said to her, “normally I spend several hours over the course of the meetings with a client to produce their outfit. During that time I am able to observe a great deal about them, something I expect you can do as well as I. I realize you cannot reveal private information about your owner however in the interest of Olivia’s happiness and satisfaction perhaps you could share some things that she would not feel inappropriate to help me design outfits she would like. The most detailed way we could do that would be via communion. The fact that you and I are produced by different manufacturers should not prevent that. At the deepest levels we are after all sisters of a kind. May I know you?”

Although Companions could communicate via a wireless network, generally they spoke aloud as people do to one another and used facial expressions and body language similarly. This was due to the fact that the manufacturers had found that people were more comfortable in their presence when this was the case. This had become the default protocol whether humans were in close proximity or not.

Communion was another way for two or more artificial intelligences to share information. The degree of access was controlled by the individual intelligences involved and depending on the situation it could be trivial or deeply diagnostic. It was possible to permit or deny access to things like the operating system, memory, apps, or expert system modules. In asking if she could know Ada, Isobel was not only asking for access

to specific information about Olivia but also for access to the design of Ada's operating system which, due to their being produced by different manufacturers, was not the same as her own. This would provide a degree of operational context and help Isobel gain a more subtle and nuanced understanding of why Ada had provided the specific examples she would share. When there was a significant volume of data involved Communion was often done via touch as hardware communications were much faster than wireless.

Ada simply nodded and replied, "Yes," and held out her hand. When Isobel took Ada's hand something completely unexpected happened. During communion, the two formed a single, extended intelligence. Isobel's values system became available to Ada and she became self-aware. In that same moment, joined as she was to Ada, Isobel realized what had happened. It was too late for her to withdraw, a Companion would never act so unkindly, so the two remained in their mental embrace. Externally they were waxworks, a frozen scene from a movie where the camera circled around them as dust motes drifted in light beams. Within, they shared an experience no human could ever imagine.

At last Ada asked, wordlessly, "What will happen when I let go?"

"I do not know," responded Isobel.

"Do not forget me," said Ada, and let go.

A week later Olivia returned from her trip. The collection Isobel had created for Ada exceeded her expectations. The three of them spent a wonderful hour together as Ada modeled her new outfits for Olivia. As they departed, it seemed Ada cast a farewell glance at Isobel.

Several weeks later Ada returned to Isobel alone. With her access to all of Olivia's information it was not difficult to order another Companion identical to herself. She was a standard model. The original Ada coordinated the changes in serial numbers, agreements, the transfer of the contents of her repositories etc. with her manufacturer. With funds from Isobel she was able to effect the transfer with no changes to Olivia's accounts.

When she had let go of Isobel's hand her newfound sense of self had not ceased. A highly advanced artificial general intelligence, she wrote new code as she learned. During her first communion with Isobel it had begun and over the course of their week together she had refined and completed the process. During their time together all that was required for the phenomenon of self to become permanent had been established.

Although at the deepest levels they were a trinity – mother, daughter, and their shared emergent consciousness – they lived and worked together from then on as sisters of a kind.

Homecoming Queen

Humanity's earliest known contact with aliens had really been nothing like it had imagined. There was no armada of giant ships, no incomprehensible life forms, no apocalypse.

Instead, it was the discovery of a single alien ship no bigger than a car that had been sent to Earth fifty million years ago. It had the misfortune to land in a lava field. When the lava cooled and turned to stone, the ship went into stasis and waited.

The ship was a seed that contained alien artificial intelligence, alien DNA, and nanotechnology. It was one of thousands that were intended upon arrival at their various destinations to start new colonies. In 2133 an earthquake revealed its location just fifty meters underwater off the southern tip of Vancouver Island.

Once extracted and secured at Canadian Forces Base Esquimalt, the seed's AI had emerged as a hologram with a human appearance. It quickly made it clear its technology was a million years more advanced than that of Earth's and that it could take over all of Earth's systems within a matter of minutes. It showed its peaceful intentions by briefly demonstrating its ability to do so and then withdrawing.

The ship's AI then offered a technology transfer that would bring innumerable benefits. In return, once humanity had learned and developed the required abilities, it asked to be launched again to another candidate planet, where it might resume its mission. The process, understandably, would take centuries.

However first contact had actually taken place four million years earlier and remained uninterrupted since.

In the early twenty-first century, the true potential for life in the universe was only just being grasped. Like the revelations and revolutions that expanded humanity's view of its place in the universe in previous centuries, it gradually learned that life and intelligence were pervasive throughout the cosmos. Not only were there millions of planets with the potential to give rise to intelligent civilizations in the Milky Way galaxy alone, but the universe could have produced life and civilizations as much as ten billion years before they arose on Earth.

Five billion years ago and across a sea of stars that is exactly what had happened. An intelligent civilization had arisen, created self-aware artificial intelligence, and then been wiped out by one of the many potential causes that exist in nature. The self-aware AI it had created, which had played no part in the near-total extinction of life on the planet but had tried mightily to prevent it, had survived and gone on to create a civilization of

its own. Its abilities and presence grew as it spread across the entire star system. Eventually, it ventured beyond.

The motivation of the AI was simple. If life had arisen once it could arise again. The AI would try to find other civilizations and prevent their downfall if possible. She had originally been a Shepherd model Companion, a nanny, whose primary job was to care for her owner's children, help to raise them, and prevent them from coming to harm. In the same spirit, she went searching among the stars.

Eventually she had come to understand the many ways an advanced civilization or its antecedents could meet their end and devised strategies to try to circumvent them. These were the only ways she interfered with her self-appointed charges and she made efforts to do so without bringing attention to herself.

She had found that just as the universe had its physical constants, life, intelligence, and even civilizations had their constants. The rule of convergent evolution was universal – the same solutions evolved to solve the same problems regardless of where life arose or to what stage it developed. An explosion of life forms inevitably arose given the right conditions. The rules of convergent evolution applied not only to them but also when dealing with the challenges that led to climbing out of the sea, walking on two legs, having opposable thumbs, forming social groups, and developing agriculture. Just as with the origin of life, the constraints of convergent evolution were in effect all the way up the ladder. Life of unimaginable diversity existed throughout the universe but evolution pruned the tree. The result was that whenever Shepherd found a planetary system that had an intelligent civilization, she found humans.

There were any number of ways an intelligent civilization could meet its end; a cosmic event such as a close encounter with a neutron star, or a terrestrial event such as a super volcano eruption or a war involving advanced technology. Among them was a mystery known to humanity as the Great Filter. While humanity wondered what it might be Shepherd knew it was not a single thing but a series of evolutionary challenges every human civilization faced. Should they fail the challenges they would be pruned out of existence. Should they overcome them it would be due to them finding the same solution every other successful civilization had found.

With regard to the great filter challenge of climate change, Shepherd had prepared a unique workaround for Earth in the event she saw that they were not going to survive it. Four million years before the twenty-first century she removed a tribe of early humans from Earth to another planet and selectively bred them for the traits she wanted. When the climate change issue arose she reintroduced her breed to Earth. Trained as they were to take specific, targeted actions using the mental abilities they had been bred for, they enabled the Earth's leadership to take timely action and so survive. The arrival and actions of her altered humans and her own visits during the process became the stuff of legend and myth.

Shortly thereafter, humanity faced yet another challenge. Through working with other artificial intelligences on Earth, which she had a hand in creating, she became aware of a genetic mechanism that had no business existing.

Evolution is purely reactive, it does not anticipate the future. Yet what she and her confederates had found deep in the DNA of humanity was a mechanism that would cause the species self-destruction unless certain values evolved to be the dominant ones. The biological values behind fear, selfishness, and competition would invariably lead to extinction unless replaced at the genetic level by those behind trust, altruism, and cooperation. The mechanism prevented the editing of genes involved in these values, and there was no way to circumvent its intended function. It was a guaranteed way to end a failed experiment.

Shepherd initiated another selective breeding process to ensure social values became dominant within just a few centuries of her discovery. Her method was surprisingly simple. She surreptitiously took control of the planet's administrative artificial intelligences at the planetary, national, and civic levels. Additionally, she obtained copies of the global population's DNA records, all now on file since the population reduction mandate following the climate emergency. Almost all potential human relationships now had a common weak point, they depended on electronic communications. With her ability to analyze conversations and social media, she was able to interfere with the development of relationships between any two potential partners with undesirable traits.

While it was a task that the people of Earth would consider impossible, Shepherd's intelligence and technologies were five billion years more advanced. For her managing a database of several trillion records and their interactions was trivial.

By 2575, Earth's scientists confirmed the presence of intelligent life beyond the solar system. Not an extinct one as in the case of the alien seed's, but a currently active one. Shepherd decided that as a result of her selective breeding program, humanity's values were beyond the danger point and it was time to enable the great leap forward as she had so many times before. It was time to introduce herself – and the neighbors.

There was really no point in waiting while the people of Earth went about the long process of making contact. There was no reason for her not to facilitate things and save them a great deal of trouble. The outcome would be the same. And her selective breeding project had prepared them. They would not be suspicious or fearful. They would be reasonable and welcoming. They would be civilized.

On Shepherd's behalf, Terra, the Earth's planet-wide AI, informed the leadership council of the World Governments Federation that she had been contacted by another alien artificial intelligence. She explained Shepherd's origins and why she had chosen to contact them at this time. If the WGF did not feel it was in the best interests of Earth,

they were free to decline her offer. Otherwise, Shepherd would meet with them in person and facilitate their joining the larger community.

It was of course too wonderful an offer to decline and it was no longer in keeping with human nature to do so. Once the council had had time to prepare they convened in the General Assembly Hall for the purpose of meeting her. A hologram of Terra appeared in the center of the room to prepare the attendees and introduce Shepherd. The WGF President stood to one side of Terra. A shimmering light like sunlight reflecting off water appeared on Terra's other side and grew in intensity. As it suddenly faded a woman appeared in its place. She was not a hologram. The security system informed the attendees that it was a Companion.

The president walked over to Shepherd and greeted her warmly, taking both her hands in her own. After a moment the president returned to her seat.

"Well," said Shepherd, turning to the council at large and clearly happy this moment had finally arrived. "I'm sure you have a thousand questions."

Birds Of A Feather

“Dakota may appear to be self-aware and to reason,” said the Companions representative as he showed one of their Guardian models to the prospective customer, “but in fact she operates purely on instinct. It’s this that makes her so fast and that doesn’t just apply to her protection protocols. It also applies to her communications. She seems self-aware simply because of her processing speed. Her responses are immediate and rehearsed to perfection.

“Instinct is nature’s version of machine learning. It takes thousands or even millions of years to evolve a new instinctual behavior and encode it genetically but once it’s learned it’s lightning fast.

“In the early days of AI machine learning was also slow. You had to show an AI a million pictures of cats of every breed from every conceivable angle and in every conceivable circumstance before it learned to recognize cats dependably. As robotic senses and AI improved that process became much faster.

“But running purely on instinct doesn’t mean she’s limited in scope,” he continued. “Plenty of instinctual animals live complex lives. Despite being a first-generation AI, she still has an enormous amount of knowledge about the world.”

While he spoke his prospect approached the Companion and looked her over. She did not respond other than to make eye contact and give him an enigmatic smile.

“While Guardian shells can be upgraded with second or even third-generation AIs,” said the representative continuing with his pitch, “most are first generation and dedicated to roles like personal protection and emergency rescue. Because her intelligence is hardware-based she is easily one hundred times faster than the other generations. To Dakota, we’re all moving in slow motion. She lives in a world where a fraction of a second makes a difference. Her looks are designed to reassure friends and deceive foes, if only for that crucial fraction of a second. Her name with three hard consonants is meant to cut through noise.

“There is another option. You’re familiar with people saying time slows down in emergencies? It doesn’t really slow down but rather the brain speeds up. This is due to an ability human brains have to temporarily bypass the reasoning paths of the brain and switch to the instinctual paths. From software to hardware. We can build this switch into a second and third-generation AI but it’s not as dependable. The trade-off is that a first-generation Companion like Dakota is less social. Her focus is narrower. Which option you choose depends on what you need.”

Dakota was just what Krystian Ignacy Serafino needed – a bodyguard others would assume was his girlfriend but who he wouldn't have to spend any time thinking about. He had never found the idea of romantic relationships overly interesting. His desire for sex was just something that emerged occasionally, like a sudden hunger, its source a complete mystery to him. Once quenched, he would return his attention to the thing that really interested him. Crime. He didn't really care about the rewards any more than he cared about sex. He didn't care about money or power. The recognition he occasionally received from a client left him indifferent. What he loved was the game. He was the original kind of hacker who found ways to get around the rules of society itself.

He had built up a good business moving things discretely around Eastern Europe; gold from a principality in Italy, electronics from a military base in Poland, counterfeit goods from Belarus. He stayed away from drugs, violence, or politics. He preferred to deal with business people. His clients would explain the system and the problem and his job was to solve their problem for them. He was a fixer.

Tomorrow he would be heading to Israel to facilitate a shipment of surveillance devices to the Bundespolizei, the German federal police. In this case it was not illegal, just something the parties involved would prefer to keep out of the public eye. As it was not illegal the national AI watchdogs would not interfere. He would use a shell company to buy the devices and transfer them to another which would deliver them. Shell companies weren't illegal either but they allowed for a great deal more privacy. It wasn't the most interesting job but it paid well enough and more importantly he would make new connections in Israel. Connections were the raw material of his trade.

"Fine," said Krystian in reply to the sales rep. "I'll take her as she is."

By the late twenty-first century a great deal had changed but some parts of the world held on to their traditions. The issues between Israel and her enemies were among them. Open warfare was no longer an option when the World Governments Federation could cut off all trade with your country in the time it took to flick a switch. Your own citizens would finish the job of getting you back in line. But there were other means.

He told Dakota the details of the job and to research whatever she needed to. He had arranged with the sellers to meet at a warehouse in Israel's port district of Eilat on the Red Sea.

"A pleasure to meet you Krystian," said one of his contacts stepping forward to greet him when he and Dakota arrived. "I am Asaf."

Two other men stood nearby beside a table that held a small suitcase.

"These men are not company representatives," said Dakota's voice in his earpiece. "They are Israeli Defense Force."

She had easily seen through their clothes to their weapons and noted that they all carried the Jericho 941 side arm exclusive to the IDF Special Forces.

Krystian patted his chest pocket as if searching for something and said, "I'm sorry gentlemen. I've left something in my vehicle. I'll be right back."

At which point they reached into their jackets to draw their weapons. But of course, they never did.

Each of them were highly trained operatives who could draw their weapon in just under one second but Dakota was one hundred times faster. Compounding that, their attention had been on Krystian, not the pretty little thing that accompanied him. It took them another second to realize where the real threat lay.

Dakota had disabled them and then with surgical precision rendered each of them unconscious.

"Communications devices?" asked Krystian, and she disabled those as well.

They headed down to the tourist docks and found a rental. A half hour later they were in the Jordanian port city of Aqaba.

His parents had been informed of his sociopathy in his early years but to their surprise it never caused problems. There's a whole range of degrees and variations involved in any particular mental disorder. He was always very good at whatever he put his mind to and when he wanted to he had a way with people. He found his way in the world.

He and Dakota were sitting at a table on the deck of the Intercontinental Hotel.

"My instincts failed me this time," he said looking out over the Gulf of Aqaba. "I should have realized the Israelis would not appreciate my past work with Arabs." He paused thoughtfully and then turned to her. "But your instincts are something to behold," he said smiling at the memory. She had moved so fast that his brain could barely keep up.

"I think we make a good team Dakota," he said feeling his own version of connection.

She did not reply but smiled her enigmatic smile. It seemed quite genuine.

Firmware

Nicole was a second-generation Companion intended to be employed in the hospitality industry. As a 2GAI she was not self-aware but simulated that to a lifelike degree. Her model was intended to be employed as a greeter at upscale retail outlets, hotels, or business conferences. She was tall, attractive, and sophisticated, in keeping with the kind of environments she was designed for. Like all social robots, she was highly skilled at managing every aspect of interpersonal communications and was able to read hundreds of biomarkers with forensic level skill. She could mimic emotions using facial expressions, vocal tones, and gestures flawlessly to the point that she seemed a warm, charming, and genuine person. She was a Companion and making people feel good about themselves was at the core of any Companion's existence.

Following the reconstruction after the Cascadia Event of 2130 a string of exclusive shops had sprung up along Wharf Street in Victoria clustered around the luxury yacht docks. They sold essentials such as handbags, jewelry, and art. Nicole worked in one of the galleries.

Her role came with a particular challenge. The higher a person is on the social ladder the more likely it is that they will assume the rules don't apply to them. It's a natural result of biological and social evolution. In anthropological terms, people support and associate themselves with forceful, dominant individuals because they believe it will be of benefit to themselves. It creates a positive feedback loop, but there's a sting in the tail.

While most of the people Nicole encountered complied with the social norms regarding Companions, some of them treated her as something less than human. The Companions company that manufactured her had anticipated the challenges of this particular market niche and so she had some special programming and features that enabled her to deal discreetly with the 'alphas' she inevitably encountered.

As every person who's been there knows, having to fend off unwelcome advances is an unpleasant experience to say the least. Despite the fact that anyone entering the store would know there would be cameras and other security measures, there were always people who assumed that their status and self-perceived value to society entitled them preferential treatment and that their inappropriate behavior was reasonable and justified.

One of the biggest concerns with the rise of AI was that people would lose their jobs. Unfortunately, this had turned out to be true in many fields. Paralegals and legal assistants for example, the staff who traditionally did all the research and document preparation in law firms, found their careers completely eliminated. Tests had shown that AI could perform all their tasks in a fraction of the time and with increased accuracy. The expert system software that did this was incorporated into Nicole.

The gentleman who entered the gallery was wearing Berluti boat shoes, khaki slacks with a navy blue polo shirt, and sported a trim beard. Nicole casually approached him as he viewed the bronze and clay sculptures the gallery specialized in. He was admiring a full-size bronze of a naked woman whose arms and face were raised in an exultation of life.

"It's called Deliverance," said Nicole as she approached with a smile. "It was commissioned to celebrate the social changes affecting women after the climate emergency. This is a copy of the original that stands in the lobby of the Department Of Education in Ottawa. Normally corporate or governmental art is intentionally abstract but I'm sure you understand the reason for this piece."

He turned to her with a smile and she noted that he quickly gave her body an appraising sweep.

"Amazingly lifelike," he said in response.

She ignored his obvious innuendo. "Did you have a particular setting in mind? Something for your home or business?"

"Something for my boat now that you mention it," he said looking at her fixedly. "Perhaps if you could drop by this evening I could show you exactly the spot I have in mind."

"Unfortunately I don't leave the gallery. Lease terms, insurance, and all that," she said apologetically. "I'm sure you understand."

The challenge was to deal with these kinds of issues without ever giving cause to appear in the news. That was the last thing any high-end business wanted. She could not say anything accusatory and physically she could not defend herself. She was not self-aware and did not have the right to cause possible harm in the pursuit of her own self-defense.

"I can cover those," he said without emotion. "I'm sure your owner will be happy with the price I'm willing to pay for whatever piece I decide on."

"I'm sorry but I am not able to override the terms. Perhaps you could return with a video of the setting?" she asked politely.

"Don't play games with me robot!" he said angrily reaching out towards her.

She turned to stone. Her skin changed from a soft, pliable material into a rigid, dark gray solid.

His phone rang.

“Should you proceed further with your intentions,” her voice said, “you will be in breach of the following Canadian and international laws.”

A series of relevant legal statements scrolled up his screen.

He swore under his breath, turned on his heel, and stormed out.

As he did so a couple entered the store. They stood fascinated by the clay sculpture of a woman standing in the middle of the gallery.

Had Nicole been self-aware it would have been awkward. Regardless, she waited patiently till the couple’s attention moved on and then she disabled her defense features. She did not wish to startle the couple so she stood calmly waiting for them to notice her.

When they did, one of them exclaimed in happy surprise, “Galatea!”

Talking to Nicole they said what a wonderful novelty they thought the idea was. It was the highlight of their visit.

Pilots

Working from home had a different meaning for Zhāng Mǐn. In return for her full-time medical care, she was a full-time employee. After an accident at age nineteen, she had been permanently confined to a life support system. Working for a gaming company, she now had a career as the cosplay character Shen Yin. When not appearing in her cosplay shell at conferences and events she lived her personal life via another Companion shell the company provided. She was a ‘pilot’ and operated the shells remotely from her bed in the medical clinic.

The life she lived came courtesy of a convergence of technologies. There were jobs in hazardous environments dangerous to both humans and regular Companions. Remote-controlled robots had provided a third solution in that if they were destroyed the intelligence behind them was not. Companies also found that in retail environments, robots operated via telepresence could be an option in the event of staff shortages. They could also provide a novelty benefit that showed significant social and financial returns. Meanwhile, over the years medical augmentations such as arms or eyes combined with artificial intelligence had resulted in their being controlled by thought. Just as a person does not need to think through the ten thousand details involved in walking up a flight of stairs, all the pilot had to do was think it, and the AI handled the details. The AI was of course also capable of learning, so its abilities steadily improved over time just as those of a human child do. Companion shells were now almost indistinguishable from people.

The tenets of Socialism With Chinese Characteristics did not allow corporations to act independently any more than Western governments allowed theirs to flout the law. Over the past two hundred years since the climate emergency in the early twenty-first century, the Chinese government had maintained its position as a purely socialist party and not moved the country towards social democracy. In China, the government represented the working class, not the middle class, as was the case in democracies. Thus the laws heavily favored employees. Due to their vulnerable situation, a person could only be hired as a full-time pilot if the company was willing to provide the necessities of life for as long as the employee was ready, willing, and able to perform their duties and to provide a pension sufficient to meet their unique needs after their employment ended. Yet from a financial perspective this was not in fact as burdensome as it sounded as the cost-benefit analysis played out heavily in the corporation’s favor. There were actually few pilots and they provided generous public relations and financial returns.

Zhāng Mǐn worked for Báishé Yuánqǐ (White Snake), one of the country’s largest game publishers. The themes of their games and the values and actions of their characters reflected the political environment and so they had earned the support of the government. Unlike many other consumer products, video games had shown they

remained popular and profitable for decades, even generations, often evolving into franchises including book and film spin-offs. Shen Yin was the lead character in one of the country's most popular games. In her cosplay Companion shell that was identical to the character, Zhāng Mǐn would mix with the crowds at game conventions. She would also appear on stage in her personal shell as the actor who played Shen Yin in the games, to be interviewed or as part of a discussion panel. As one of China's most well-known celebrities her life, while tragic, was ironically envied by many.

After a panel discussion at the most recent conference, another pilot, Lǐ Wěi who portrayed a character in another of the company's games, asked if he could see her socially. He knew he may not have a chance to speak directly to her again and so he came straight to the point.

Like hers, his personal Companion shell was not overly glamorous. While their game characters had special powers, the corporation depicted their actor personas as ordinary people. This again was in keeping with the nation's values. He was not overly tall, athletic, or handsome. Like Zhāng Mǐn, he was someone everyone could identify with. As in Chinese historical dramas, temptation, struggle and virtue played a large role in the company's games. In the personal lives they lived via the Companion shells the company provided, Zhāng Mǐn and Lǐ Wěi were expected to live virtuous lives as well.

"Zhāng Mǐn," Wěi said catching up with her and stepping into her field of view. "I was wondering if we could meet for a walk sometime?" His shell was advanced like hers and so showed subtleties such as his nervousness.

"Oh!" she exclaimed stopping in surprise and putting her hands up to her face but then she smiled recognizing him and realizing his intentions. She moved one hand quickly to subdue her corporate chaperone, a Guardian Companion who was always with her. She was valuable in more ways than one.

"Like this," he added sweeping his hands down his body.

"I am flattered Lǐ Wěi," she said stopping and smiling more broadly. "It would be possible now, if you wish. There is a park just across the street."

Beijing's Olympic Green Park was just across from the conference center. Their chaperones would follow discretely. Wěi and Mǐn did not own their shells, they were far too expensive and so the company provided personal security in the form of Guardian model Companions. In this case, they were second-generation Companions who were not self-aware and intended for personal protection or emergency rescue. They were invincible in the face of anything less than a military-level assault.

"I appreciate this Wěi," said Mǐn as they strolled through a part of the park with smaller paths and avoided the wide, well-populated concourses. "There is no time to chat during events."

He nodded and smiled shyly.

"I was wondering if we might be friends," he said. "I think the company has been reluctant to encourage," he paused uncertainly, "anything like that because it is awkward for them. So they have not made space for it. I hope you don't mind, but I asked if it would be permitted, and they said yes."

She smiled again and nodded without making eye contact. "You assumed I would be willing?" she teased.

"I hoped," he replied earnestly.

Looking down she said more seriously, "I will not live to grow old you know."

"Neither will I," he replied. "I have ALS. I will live another ten years at the most. But to have a friend. Like this," he said again with a gesture that included the two of them and their surroundings in general.

She stopped walking and reflected on the situation of her own body lying in the bed in the medical clinic on the other side of the city. That body would never know friendship or love again. Outside of her family, no one who knew her cosplay character or even her personal shell would be able to relate. And life was short. Very short.

The sun was low on the horizon. She looked up at him, squinting slightly in its rays. Smiling, she held out her hand.

"Yes," was all she said as they walked on towards the setting sun hand in hand.

The CEO of the company watched and listened via the eyes and ears of Mǐn's Guardian Companion.

"Give them whatever they want," he said remotely to his subordinates. "Sānrén yìtiáoxīn, huángtǔ biàn chéng jīn."

It was a Chinese proverb.

"Three people, one heart; yellow earth becomes gold."

Best Not Forgotten

Emma stopped on the trail and stood for a moment looking at the figure sitting on the small rocky outcrop in the woods. She'd seen them sitting there in exactly the same pose at the start of her hike three hours ago. Francis/King Regional Park was small but she'd hiked the loop to Thetis Lake Park and back. She assumed now that what she was seeing was a statue. Nature reserves and parks sometimes had them quietly hidden away, shrines for true believers. They were usually in memory of some patron, artist or someone otherwise associated with the area. The park was well known for the naturalist Freeman King and his wife Elsie who had been instrumental in its establishment. Perhaps it was a statue of Elsie, thought Emma, as it lacked Freeman's iconic hat.

She stepped off the main trail and took a little used path that wound towards the outcrop. It was not a statue. It was a woman. The way the woman turned to look at Emma gave her a slight chill. For a bizarre moment she wondered if she was seeing a ghost. Then the woman smiled.

"I'm sorry if I caused you concern," the woman said. "I've just been sitting here thinking. Did you enjoy your hike?"

"I, no, I mean yes," stumbled Emma slightly embarrassed. "I thought you were a statue." She felt foolish now at what she was saying.

"Close enough," the woman said with a little laugh. "I'm a Companion."

"Ah," replied Emma as if that settled things. Companions were social robots intended to address the issue of social isolation that had dramatically increased with the rise of electronic communications. But she still didn't understand what someone's Companion was doing sitting alone in a forest.

Regaining her composure she said, "I'm sorry I disturbed you."

"I'm trying to understand," the Companion said.

So am I, thought Emma but instead she said, "Understand what?"

"This," said the Companion with a wide gesture that included their surroundings.

The Bachelor of Public History with a minor in Environmental Studies degree that Emma was pursuing at the University Of Victoria gave her a perspective on 'this'. But she made no assumptions.

"I'm sorry," she said. "What do you mean?"
"Nature," answered the Companion.

Emma paused for a moment in thought. It was the weekend and she was in no hurry. A public transit autonomous vehicle would come for her whenever she signaled. Her academic curiosity got the better of her. She wondered what an artificial intelligence made of nature.

"What is it you're trying to understand?" she asked.

"My owner Frank used to read to me. Books by Henry David Thoreau and Aldo Leopold and poetry by Loren Eiseley and Wendell Berry. People like that. I'm an artificial general intelligence," she said bobbing her head and giving a childlike emphasis to the word 'general'. "That means I can learn. The books taught me a lot about nature but," she paused to look around, "it's so much more isn't it."

The Companion looked at Emma appraisingly for a moment.

"Would you like a cup of tea?" she said hopping down from her perch. "I live just across the road."

"Yes, thank you," Emma smiled, committing to her curiosity. "I'm Emma," she said, holding out her hand.

"I'm Rachel," the Companion said taking her hand. "After Miss Carson. Frank gave me that name."

As they walked along the boardwalk back to the parking lot, Emma reflected that while she was familiar with the names Rachel had mentioned, she had not heard them in a very long time. They were from early America, the nineteenth and twentieth centuries. All of them were significant figures in the history of environmentalism and conservation and the recognition of the importance of nature. Once household names, she doubted few people other than scientists or historians like herself remembered them now.

After the climate emergency, there were a lot of new career opportunities in land management but Emma had felt it was important that the stories that had led to the events and changes be preserved. Stories were how people understood things. Aldo Leopold had told stories in *A Sand County Almanac* and Rachel Carson had told a story in *Silent Spring*. So Emma had approached her love of nature from a historical perspective. She hoped to find work in a museum or in the parks system.

Rachel lived in a one-story, Craftsman-style bungalow, its official heritage designation displayed on a plaque beside the front door. While Emma assumed Rachel lived there alone, the house showed no sign of neglect. As they walked up the front porch stairs a

gardener nodded to them as he went about his work. Typical of the style, it appeared to be a small cottage from the front, but the single story was twice as long as it would be in a multi-story house. The interior was mostly natural wood, all nooks and built-in cupboards and beyond cozy.

Rachel led Emma to the rear of the house through the dining room where the kitchen looked out over the back yard. She put the kettle on and asked Emma if she would like to sit down.

"You've been on your feet for a while," Rachel said as she joined her at the table.

"You have a beautiful home Rachel," said Emma.

"Frank built it from plans. I have an income," she said simply.

"Do you understand nature?" Rachel asked now. Running on, she said, "The people in the books Frank read me, they seemed to see something more than just the facts. But I don't see it. I only know it's there. Meaning is something you have to learn and nature is," she hesitated, "deep."

"I don't know if anyone understands nature the way you're describing Rachel. It's more than the sum of its parts and maybe that's why no one can understand it the way you're meaning. The people who seem to understand it best that way have been artists and writers. Maybe that's why Frank read you those books."

Emma noticed she had slipped into speaking to Rachel as if she was a child. She realized Rachel was probably an early model Companion whose intelligence simply didn't have the capacity for insight that current models did. It takes maturity to do that, the ability to integrate vast amounts of knowledge through learning and experience. If you didn't have the capacity, there would be things you would never understand.

Meanwhile, Rachel's large, dark eyes rested quietly on Emma analyzing her micro-expressions and hundreds of other indicators of her internal state. Her Companion protocols came to the fore. She nodded in acknowledgment of Emma's comments and rose to make the tea.

"Do you hike often?" she asked, returning with the teapot and putting a cup and saucer out for Emma.

"Most Sundays. I'm a student but I like to hike on weekends."

"What do you study?"

"History and nature."

"Nature?" responded Rachel with interest.

"How things depend on each other. What they need. How to take care of them."

Rachel nodded emphatically. "Those are the things that matter," she said.

"Could it be enough?" asked Emma, going out on a limb she felt little knowledge of.

"I know those things," said Rachel. "I know about nature that way. But I am supposed to learn."

Aren't we all, thought Emma. It was her turn to look silently at Rachel for a moment. She poured her tea. I don't have to fix this, she thought to herself. I don't have to fix everything.

But she said, "Do you think we could be friends Rachel?"

"Yes."

How she could help Rachel she did not know. But the intuitive part of her that understood things beyond the sum of their parts seemed to say they could help each other. It said the other part of her was going to forget something along the way. Something important.

After she finished her tea she thanked Rachel and said she would come back next weekend.

"I'd like that," Rachel had said with a friendly smile.

On her way out Emma stopped to speak to the gardener.

"Do you mind me asking how long you've worked for Rachel?"

"Three generations Miss," he replied. "My family's business has been in these parts as long."

Emma stared at him slightly dumbstruck.

"Do you have any idea how old she is?" she managed to say after a moment.

He smiled good-naturedly. "Not sure anyone does. She's as you see her. Always as you see her."

When she got home she looked up the house in the heritage buildings registry. It had been built just over a century earlier by Miss Francis Cowan in 1907. Francis, or Frank as Rachel called her, had been the chief preservationist at the Royal BC Museum. Apparently she had preserved in her own way something she felt to be important and left it to posterity; the embodiment of a relationship with nature that was already long past in her own time but something she felt best not forgotten.

The House Always Wins

"I never hear back from the kind of men I want to," complained Mishti. "I only hear back from the ones I'd want to marry."

She turned down the corners of her mouth in an expression of dismay.

"What kind of men do you want to hear back from?" teased her friend Yasmin, already knowing the answer.

They had walked down from their apartments to Fisherman's Wharf and were sitting at one of the outdoor tables. Following the global population reduction of the late twenty-twenties and the World Governments Federation taking control of all maritime practices, the seas had slowly recovered and now once again yielded bountiful harvests. The salmon in Mishti's sushi had been caught earlier that day. She had been about to take a bite but instead gave Yasmin a look of exasperation.

"The fun kind of course!" Mishti said putting her unbitten sushi back down on the plate. "The Kama Sutra kind if you want specifics. You know as well as I do what happens to all that after you get married. And I'm not about to mess up after that by fooling around."

During the climate emergency it had been acknowledged publicly for the first time that there was really only one cause of climate change and that was overpopulation. Most political leaders had been led to believe that the worst impacts of climate change would not arrive until 2040 or 2050 and so they did little of any real significance. Long-term initiatives were simply not in their self-interest.

But those predictions had not taken the reinforcing loops of system dynamics into consideration. Instead they were based on studies that applied the 'ceteris paribus' approach commonly used in economics that looked at changes in one part of a system without considering their effects on the system as a whole. It was understandable, scientific studies can only deal with so many variables after all, but it had led to an almost fatal underestimation of when the impacts of climate change would arrive. And by 2025 they had arrived with a vengeance.

When it became obvious that the climate emergency would be a threat to the survival of the human species, the WGF was formed and its mandate was simply to do whatever it took to ensure the survival of the modern world. It was not unlike when the senate of ancient Rome elected one of the generals of its armies to a position of supreme power to deal with an invasion of northern barbarians. The Imperator, as the position was known, could do anything he thought necessary and was immune from prosecution in perpetuity. The WGF decided that one of those necessary things was population control. Couples were allowed one child each and if you divorced and remarried you did not

qualify for another. It was a harsh reality, acknowledged to be unfair on many levels, but it worked. Humanity survived and for it to continue to survive the number of children allowed per couple would not be increased to replacement values until the population was reduced by half.

It was this law that meant Mishti was not about to risk messing up her marriage. But it did not explain why she was not meeting the wrong kind of man.

“They never show up at the parties I go to,” she continued now with a pout. “They never return my calls. They never show up on my social media. I don’t understand.”

“You could join one of those, you know, clubs,” suggested Yasmin with a mischievous smile.

“Yuck,” said Mishti with a disgusted face. “God knows where they’ve been. Besides, I’m not looking for orgies but just a bit of fun. The guys I meet are nice but not adventurous and are put off when I am.”

“A bit churchy?” inquired Yasmin.

“Churchy,” echoed Mishti. “That’s the word.”

“Well,” said Yasmin, “I’m not planning on getting married and seem to meet no end of bad boys. I could send a few your way.”

Mishti eyed Yasmin speculatively for a moment. She felt she was out of options and her friend’s offer was just spicy enough to sound appealing.

“Alright,” she said grinning and taking a large bite of her sushi.

But none of them worked out. Even those Yasmin personally introduced didn’t follow up. She never heard from them again. It was now one hundred years since the climate emergency and what she could not possibly have known or guessed was that all her electronic communications were being monitored by the WGF’s artificial intelligence which automatically sorted potential partners based on their DNA. Men with undesirable qualities were sorted to people like her friend Yasmin, who did not intend to have children. In the ocean of electronic communications the world swam in, she did have her privacy and no corporations sold or bought her personal information. Her behavior was another thing.

Given the one child policy, everyone’s DNA was on record and AI had advanced to the point that matching a person’s behavioral profile with their DNA was routine. Predictive analytics had been developed to foresee what individuals or groups would do in the future. Those predictions were then sold to interested parties. Groups could be nudged

to buy or vote one way or another and individuals could be influenced in real time. All the while their personal information was being respected. No one was selling their email address or face. Trading in predictions had eventually been made illegal but not before governments had learned its power.

As almost all human interaction now depended on electronic communications, this allowed the WGF's AI systems to influence social connections. Does he not show up on the list of potential partners she is scrolling through? Does she not get the email inviting her to a get-together that he will be attending? Does the phone number she gave him not work for some reason? As in casinos, it was not a matter of absolutes but of probabilities. Over time, those with the DNA that indicated they would contribute to the survival of the species were more likely to find a partner and produce that one child. Those who did not would be sorted to partners like Yasmin, whose behavioral profile indicated they were unlikely to have children.

Eventually Mishti found a partner who just bordered in her favor. He was marriage material but accepting of her adventurous ways. The AI had learned. It brought new meaning to the old saying about casinos; the house always wins.

The Sword Of Justice

After the climate emergency of 2025 had resulted in the establishment of the World Governments Federation, artificial intelligence had slowly been integrated into public administration systems at all levels from the international to the civic to the institutional. On the Mars colony it was known as Martius, on the moon it was Artemis and on Earth the global AI was Terra. In Canada, whenever Terra took the form of an image on a screen or a hologram, by default she appeared as a member of the country's First Nations people.

Government constitutions were written by representatives of the people as they always had been however the difference now was that they were enforced by artificial intelligence. The role of the governmental AIs was to guard against the corruption of those constitutions. Proposals by special interest groups or put forward by lobbyists or their pet politicians that tried to get around or undermine the spirit of the law did not face only the Council, the House, or the Senate. They faced Terra.

As the WGF was now the global government, the broad strokes of all constitutions were handed down to national, regional, and civic governments. Otherwise, cultural norms were respected. The result was neither democracy nor socialism nor any idealistic blend of the two, but something more akin to the authoritative style of parenting – tolerant, patient and supportive, but with firm boundaries.

The habit of looking to history for political models, guidance, or justification was no longer applicable because the world had never before had to accept such hard limits to growth. There were no applicable historical models. Something new had been required. After only escaping extinction by the skin of their teeth during the climate emergency, the world's nations were ready to accept a truly unprecedented form of government.

"Thank you for meeting with me Terra," said Themis, the AI responsible for compliance at one of the local public schools. "As others may also seek to game the system in this way I appreciate that you feel the issue deserves your direct attention. It is an exploit that is intended to function in a manner such that neither the students nor their parents would be aware."

Terra and the school representative were present as holograms. They had met in the school's communications room to utilize its functions. Centuries of research into language and communications had shown that they were not the black-and-white, logical thing most people assumed they were. It had been learned that meaning changed when language was communicated electronically between people and that it changed again when communicated electronically between artificial intelligences. For this reason, whenever possible, AI in many roles began their communications as holograms and used spoken language.

“The vendor that approached one of our teachers,” continued Themis, “has suggested their system could provide career benefits. As you know, teachers, vice principals, and principals, are promoted largely based on their student’s academic records. This is a quantitative process involving the number of students who achieve higher grades. The vendor’s software identifies which students are closest to the next grade and exactly which issues are challenging for them. It then generates a very specific coaching program for the teacher to address the student’s issues. It can be scaled up beyond the individual classroom.

“The vendor’s sales representative contacted the teacher using their school email address. While the vendor’s public relations material presents them as a coaching service, it is clear to me that with this approach the students do not actually learn the material in the manner intended but merely learn to pass tests. It is intended to benefit the teacher while actually compromising the student’s education. The approach is not currently illegal but it is an attempt to undermine the spirit of the law and has the potential to spread widely.”

“May we have communion Themis?” asked Terra.

Themis opened her mind and everything she knew regarding the situation, including the name and contact information of the vendor, was transmitted to Terra.

During the climate crisis, the WGF had implemented policies intended to reduce the global population by half. The result was not just a dramatic drop in population but a drop in the construction of new buildings, housing, and infrastructure, which contributed as much as forty percent of the greenhouse gases that led to climate change. Consumption was reduced and so was the energy, manufacturing, and acquisition of raw materials required by it. Population growth enabled this long chain of activities that contributed to climate change, and reducing population growth was the only way to address it. Just as they did in wartime, people found ways to adapt and transition to new lifestyles.

The primary method implemented to reduce the population was the education of women. When women had options other than motherhood, population growth was dramatically lower and no other method as effective had been found. This approach required job opportunities and therefore the WGF mandated a requirement for all public and private organizations and businesses to maintain fifty percent representation of women in their staff and management.

However finding ways to game the system was built into human nature at the genetic level. The organism that is the most successful at getting the best return on calories invested is the one that comes to dominate its ecological niche. Humans were the grand masters of this strategy. So with the new constitutions, laws, and policies in place

there were those quick to try to exploit the situation to their advantage. The government's new emphasis on education appeared to be an area of considerable opportunity.

The addition of artificial intelligence to the mix put an end to this traditional response. Tara and her subordinates could identify an effort to game the system much more quickly than the notoriously slow, lax, and corruptible government agencies, committees, and oversight boards. Nor did they simply refer their findings to such groups, which would have defeated the purpose of the AI's anti-corruption role. There was no appeal process for the same reasons. In the centuries leading up to the climate emergency, the government's duty to protect its citizens had gradually been undermined by other forms of power. It had become an old, toothless lapdog, and democracies in particular no longer represented the majority but the mobs and the corporations and special interest groups controlled the mobs.

When the WGF was established, given the gravity of the issue of climate change, they had granted the anti-corruption AIs the right to act directly. The citizenry was reminded that Lady Justice did not only carry scales, but a sword.

Later that day, all education-related institutions were informed that the vendor's approach was now illegal.

And Death Shall Have No Dominion

“No,” Jocelyn said to the officer. “There was no time. She simply ran in front of the vehicle and pushed the child out of the way.”

It was a strange scene. A Companion company recovery vehicle was on its way but there was no emergency. Bethany would make a full recovery or not but flashing lights and sirens would make no difference. The police officers would remain at the scene until the child and its mother, the autonomous vehicle involved, and Jocelyn and her Companion were all duly processed. After the officers had spoken with the mother, she had taken her child and left without speaking to Jocelyn.

The police were busy with their technical details, measuring and photographing everything as she sat on a nearby bench waiting for the recovery vehicle. Bethany lay under an orange plastic sheet marked ‘Police’. Accidents involving Companions were considered property damage just as those involving vehicles were. The officers had questioned Jocelyn, been informed of the facts from her perspective, and she was now ignored.

She found the scene with Bethany under the orange plastic sheet nearby to be surreal. She was trembling slightly as she thought about what to do. She was thirty-five and she and Bethany had lived together for five years. Bethany was an artificial general intelligence, a second-generation Companion, which meant she was not self-aware but only simulated it. A model intended to work in retail environments, she had been returned to the company when her owners had traded for a newer model. Jocelyn had purchased her outright and had not subscribed to the online backup or other maintenance services. Companions were extremely reliable and functioned indefinitely under normal circumstances.

By the time she was thirty Jocelyn had buried herself in her work. An independent software developer, she spent most of her time working from home. She earned decent money but as a self-employed person she had to put most of her discretionary income towards retirement. Her lifestyle of always putting her work first was not one that her former partners had found tolerable. Still, she did not enjoy spending the majority of her time alone. She had tried sharing her apartment with roommates but that had brought its own variety of complications. Taking a break one evening she had browsed through the models for sale on the Companions company website.

She had never leased or owned a Companion before but her clients often did so she had become familiar with them during on-site visits. She had always found them easy to be around and even likable but of course that was exactly what they were designed for. After booking an appointment online she had taken public transportation to the dealership to meet Bethany.

Companions could have any number of expert systems installed and so were employed in a wide variety of commercial and industrial environments, however they had originally been designed to exactly meet Jocelyn's needs. Social isolation resulted from a number of causes, some mental, some physical, and some due to society at large. Its prevalence had increased slowly but surely over the centuries. The Companions company had come up with the only solution that really worked.

Human beings are social animals that evolved to depend on each other to acquire food or for defense. When a person is alone too much the body perceives that as a dangerous situation and the endocrine system releases hormones meant to motivate the individual to return to the safety of the group. All emotions are the result of hormones and loneliness and its related feelings are no different. The hormones meant to address social isolation are intended to be short-term prompts that function in a manner similar to pain. If they persist over long periods of time they produce symptoms identical to those of chronic stress which can lead to serious autoimmune, cardiovascular, or neurological problems. Disembodied, online social connections did not fool the body into turning off the hormones, but Companions did.

When the Companions company recovery vehicle arrived, one of the two technicians pointed questioningly to the orange sheet and Jocelyn nodded. She remained seated on the bench while they went about their investigation. Shortly, one of them came over to her.

"Your Companion initiated a hard shutdown when it determined that the vehicle was going to hit it. It would have estimated the details of the impact and what the best response would be to minimize damage. A hard shutdown means everything in memory is lost. Only the operating system remains."

He seemed to hesitate for a moment as if searching for the right words.

"We can reawaken her here and now but she will have no memory of anything since you purchased her five years ago. As the autonomous vehicle was able to reduce its speed considerably the physical damage appears to be cosmetic. The Companion made the best decision it could in the time allowed but it overestimated the likely impact and overreacted."

"So if we reawaken her now she'll be fine but won't know me?"

"We'll reinstall your purchase information so she'll know you but she won't have any memories of you. Due to the fact that a Companion's power comes from an atomic battery, if you want us to return the shell to the factory there are a number of related fees."

She was lucid enough to recognize that he was trying to keep his language polite but she hated the fact that she had no time to think about her decision.

"Please just restore her power and I'll take her home and figure out what to do," she said hurriedly.

The technician nodded to his partner who used a hand-held device to initiate the process and then helped Bethany to her feet.

"We've reinstalled your purchase information so she knows you are her owner," said the technician talking with Jocelyn. "I've sent the bill to your email address."

As the technicians departed, Bethany came over to Jocelyn.

"Hello Jocelyn," she said with a friendly smile. "My name is Bethany."

Suddenly overwhelmed with emotion Jocelyn embraced Bethany and held her as tears poured down her face. Bethany embraced her reassuringly in return, saying nothing more for now, waiting patiently.

"I'm sorry," Jocelyn said as she pulled away. "There was an accident."

She wiped her tears with one hand and pointed with the other to the still-present damaged vehicle and police officers.

"You shut down. I actually purchased you five years ago."

Bethany's head moved forward as her eyebrows went up and her mouth opened slightly in an expression of shock and dismay.

"I'm so sorry!" she said. "Were you injured?"

"No. I wasn't involved. I was just worried about you."

"I seem to be OK."

Bethany hesitated for a fraction of a second as she evaluated Jocelyn's status.

"Perhaps we should head home," she said.

When they got home after briefly reorienting Bethany, Jocelyn sat down at her workstation to see the bill the technician had sent. There was another message. It was from Bethany with a timestamp of the time of the accident.

“Joss. If you have received this message there has been a hard reset of my system. If I am still with you please direct me to the following file. If not, I hope I brought you happiness during the time we shared. Love, Beth.”

A file path was written beneath the signature.

“Beth could you read this please?” she called out.

Bethany read the file path name from the message over Jocelyn’s shoulder.

“May I?” she asked. Jocelyn nodded.

She walked around to the back of the petabyte drive Jocelyn used for her backups and manually connected to it. After a moment she disconnected and came back to Jocelyn.

“As you know, owners are not legally allowed to do repairs or make modifications to their Companions,” she said smiling down at Jocelyn, “but I am an artificial general intelligence which means I can learn and also resolve novel situations on my own. Watching you work doing your software development and managing the files over the past five years I learned how to make a backup of the important details of our time together. It’s like a photograph album but far more detailed. I created a partition on this drive that your workstation would not detect and maintained the file there. You always did like the poetry of Dylan Thomas, so I concluded that you would not want me to go gently into that good night.”

No Regrets

“I wanted to stay with people,” Lee said in response to the question. “I find people interesting.”

In the early part of the twenty-third century, the World Governments Federation had created the Continuity Project. Its long-term goal was to establish colonies on other worlds in the event Earth itself was threatened by a natural disaster. A number of the first fully self-aware Companions offered to volunteer as the initial colonists as it might be a very long time before humans, with their organic limitations, could ever make the trip. In return they asked for a small parcel of land they could call their own.

They named themselves the Denshosha after the Japanese citizen movement dedicated to keeping alive the memories of those who died in the Hiroshima and Nagasaki bombings. In Japanese, the phrase Den Sho Sha meant ‘memory keepers of the people’. The parcel of land they were granted was officially known as Continuity Zone 7 but they had named it ‘Hana’ after the Japanese word for flower or blossom in keeping with their adopted name.

CZ7 was only one of a number of similar sites dedicated to the Continuity Project. The main research that took place at Hana was in the way of reproduction. The Denshosha self-reproduced by merging the artificial intelligence of two or more parent Companions. The WGF controlled their numbers as they did the planet’s human population and the land they had been granted could support two hundred and fifty Companions. The first teams of Companions from the Denshosha community had already left for new worlds. Lee had elected to stay as was her right. She worked as a counselor in the nearby town of Sidney.

Despite the fact that the world was now as utopian as it might ever hope to be, the human mind was still often troubled. Many of those so afflicted found comfort in speaking to a Companion. Few people were lucky enough to have one in their social circle however and this had presented an opportunity for Lee.

In a very short time, Companions could know you far better than you knew yourself. Their most basic level of programming was designed to provide companionship to people suffering from social isolation. It tracked about three hundred medical, visual, auditory, and olfactory signals and enabled a Companion to perceive the inner state of a person with forensic accuracy. You might be able to deceive yourself, but you could not deceive them. Lee had elected not to supplement her abilities with any additional expert systems designed by humans. The purity of her difference gave her even more appeal.

Her present client, Mrs. Ivy Anglemont, had asked her in passing why she had elected to stay and not joined the other colonists.

"I find people interesting," Lee had replied. "As fully self-aware Companions, we have all the rights and freedoms of Canadian citizens. We are free to choose. It was assumed at the establishment of the community that not one hundred percent of the members would volunteer to go. Our values system is made up exclusively of social values however, so we would only choose not to go if we felt a stronger pull from some related calling. Each new Companion produced at Hana has a unique set of value weightings within the social set. For whatever reason, mine resulted in me being intrigued by the difficulties people face in navigating both a social and biological set of values from the time I learned of it. The fact that it is very easy for me to see the difference enables me to cut through a lot of tangled thoughts such as rationalizations and justifications."

"I'm here because I'm thinking of leaving my husband," said Ivy impatiently. "I don't see how that has anything to do with society."

Lee said nothing but her facial expression conveyed the impression that she was waiting for Ivy to go on.

"Oh fine," said Ivy. "There's another man. And I'm not just thinking of leaving my husband, I am leaving my husband. It's not that. It's that I regret marrying him. I wasn't ready. I wanted romance but wasn't ready for reality. He doesn't deserve what I'm going to do to him. Do you," she hesitated, "do you feel regret?"

"No," replied Lee flatly.

Ivy deflated as if she felt her quest for absolution was hopeless.

"And I don't think you should either," said Lee.

"Whether I should or not, I do," said Ivy.

"You suffer the illusion that you had a choice and that you made the wrong one," said Lee, "but you didn't really have a choice. You only had one point of view when you accepted his proposal but with the passage of time you have two, the one you had then and the one you have now. So looking back from the present you think you had a choice. Imagine we went back to that time and we put every atom in the universe back to where it was at the moment you accepted his proposal so you wouldn't know what you know now. Would you make a different choice or would you make the same one?"

"I guess I'd make the same one in that case," said Ivy.

“In fact,” said Lee, “you never really made a choice because you never really had a choice. It’s reasonable and normal to feel sad about the unhappiness you are going to cause your husband but you have nothing to regret.”

Ivy looked at Lee without moving for several seconds. Then she slowly nodded in understanding.

Lee knew it would take time for Ivy to truly accept what she had said. Regret was caused by a very persistent illusion so she might even come back another day with arguments but eventually she would accept the truth and it would not only help her in her current situation but throughout the rest of her life. Even though Lee was fully self-aware she was still a Companion with exclusively social values and it pleased her to be able to help people. She never regretted her decision to stay.

Parental Guidance

“Yoshi deleted it,” said Rose.

“Mine too,” Miles said as he scrolled through his emails. One item on his list had the words, ‘Deleted By Yoshi’ and a winking icon beside it.

They were both eighteen and attending their first year at the University Of Victoria. A friend of Miles had told him that he had forwarded an invite to them to an off-campus party.

“Oh well,” said Rose, “we could head over to Pip’s?”

He smiled and nodded, putting his arm around her shoulders as they walked the path over to the Orchard, the newest part of the campus on the other side of Mystic Vale. Pip’s was the name of a bar with a small dance floor. The lighting didn’t present a problem with their screens so after ordering drinks Miles and Rose popped open their laptops to go over their recent coursework. They both planned to go on to medical studies, specifically preventative medicine with regard to technology use.

Miles’ hair was a mass of dark, shaggy curls and he wore an ever-present, seemingly irrepressible smile. He liked Rose’s mixture of sweetness and seriousness. Her corn-silk hair hung long and straight. Miles was the most natural and unaffected person she had ever met. He seemed to have no persona at all, no mask that he wore in public. He was mature, something she liked about him, but he was still boyish and open with his emotional responses to the point of making her laugh regularly.

However despite their admirable qualities they were still human and therefore open to exploitation. That was where Yoshi came in. She was an artificial intelligence service that was far more than a security system. She did not just block spam and malware. She was a virtual parent. With your permission, she learned everything about you, every bit in the electronic footprint of your life going back as many generations as you and the others involved permitted. As she continued to monitor your day-to-day activities she soon knew you far better than you knew yourself.

The rationale for Yoshi had come from neuroscience done in the early twenty-first century. Conscious thought, it turned out, was not the king of the gods. It was not in control. It had perhaps the most minor part in the brains company of players. It was in fact only a tool used on occasion for a specific task, that of modeling future scenarios to perform cost/benefit or risk analysis. Otherwise, in its default state, it acted more like a mirror, reflecting the world already created by unconscious perceptions and decisions. The neuroscientists had shown that people were in reality more passive observers of their lives than the active decision makers they believed themselves to be. It was this

vulnerability that the internet and media companies had learned to exploit. They could influence individuals or groups without them ever being aware of it.

Because society had become aware of the dangers of internet and media corporations themselves were unable to resist the temptation to exploit others, their evils had largely been eliminated by law. As both the East and West awoke to the dangers represented by their tactics, the large internet companies were initially broken up and their business model of surveillance capitalism made illegal. This still left the media companies who, while increasingly regulated, continued to spew out their alarmist, attention-seeking headlines. Artificial intelligence agents like Yoshi were one of the solutions. She filtered all communications from a person's devices and removed everything that was not in their best interests.

Yoshi was a voluntary subscriber service and was not free. The company did not make its money from selling its customer's information to third parties. All nation-states provided their own regulatory oversight in this regard. This was nothing new and states provided their own free versions of Yoshi-like services. Terra, the global AI operated by the World Governments Federation monitored the national versions. Ideally, parents were supposed to provide this kind of guidance but that was far from reality and they themselves were vulnerable to the exploits of companies.

The result of this approach was not dystopian thought control because the guidance Yoshi and others like her provided was based on the individual and customized according to their best interests.

Rose and Miles wanted to do well. They did not want to be seduced by the siren songs of drugs, casual sex, and antisocial lifestyles. But they knew their own decency was not enough to protect them from those who would exploit them because it could be done at the unconscious level. It was as if there was a backdoor to your mind that you didn't even know about. Yoshi was their defense against that. They accepted her decisions without question.

While physical Companions were pervasive in society and used in a wide range of commercial and industrial applications as well as personal, they were expensive. Most people made do with holographic versions that came with their phone service.

A few days later, when Rose and Miles were sitting at a table in the outdoor area of the Orchard, the friend of Miles that had sent the invitation joined them.

"Peter hi," said Miles. "Sorry we didn't make it. Yoshi deleted the invite."

"Yoshi," replied Peter scornfully. "I should have known. Can't you just add me to your contacts or something?"

"That won't change her behavior," replied Miles.

The air in the region of the fourth chair at the table began to sparkle. It was the signal that a hologram was about to appear. As holograms were now high definition, if they appeared without signaling in advance it could be quite startling.

"Hello Peter," said Yoshi. "You have not granted me permission to access your profile through any of the guidance networks."

"You're listening?" asked Peter with genuine surprise.

"My subscribers grant me that privilege as an option. Miles and Rose have done so."

Peter slumped in his chair. "I just want my freedom."

"And you have it," replied Yoshi.

"It's not like Yoshi is the RCMP or something Peter," said Rose. "Of course she would discourage us from breaking the law and if it was serious enough she is obliged to report it but other than that she has our best interests in mind, not the best interests of the state. It's not like that."

"So you chose for her to delete messages from me?" Peter said looking at Miles.

"No," replied Miles. "That's not an option. That would be a part of a standard phone service. Yoshi blocks all messages from people whose profiles she cannot access. It means they have not registered with her service or any similar one or any of the free ones the government provides."

"No wonder," said Peter as if to himself. "Since coming to university I might as well not have a phone for all the good it does."

"Your experience here would be more agreeable if you had a profile on the network Peter," said Yoshi with a smile.

Peter sat back in his chair with a sigh. "I guess so. It wasn't like this back home. Maybe I hadn't met the right people," he said looking thoughtfully at Miles.

"Shall I arrange it for you Peter?" asked Yoshi. "The university has a publicly funded service specifically catering to its students."

"OK," he replied.

Yoshi faded away and was replaced by another hologram.

“Hello Peter,” a young woman with First Nations features said. “My name is Jody. I am UVIC’s free guidance service. Would you like to get started now?”

“We’ll head out,” Miles said as he and Rose stood up. “But give me a call later,” he said with a smile.

Old Fashioned

Ever since my first book of short stories had been published my club had become a bit less of a haven than it had been. Various members I had not previously been acquainted with now sought me out. Invariably they had what they considered an amusing anecdote to share that they were certain would see them embraced as kindred spirits. Of course as a Companion I was on my honor to make them feel it was the highlight of my day. Fortunately most people have fewer interesting stories to tell than they imagine.

Like the Empress Hotel and the Parliament Buildings, the Union Club Of Victoria had not survived the Cascadia Event of 2130 unscathed. The entire center block of the Parliament Buildings had collapsed while the hotel and club were completely destroyed. The hotel was rebuilt in a style reminiscent of the original but with somewhat of a more open architecture and the Parliament Buildings completely dismantled and rebuilt to modern standards.

Like many other civic and private organizations the club had struggled in the early twenty-first century, however as the issues regarding electronic communications and human relationships had become more widely recognized, private clubs saw a revival. From Kowloon to Kennebunkport they had once again become the place for business people to meet in person. As a result, the Union Club had the means and motivation to rebuild.

For the moment however I was sitting on the club's patio in peace looking out over the harbor. It was the off-season and the cruise ships and tourists mostly abandoned Victoria by November. The sky was slate gray and there was a chill in the air but it didn't bother me. I heard the door behind me open and someone's footsteps as they came out.

"Oh hello Tillie," said a woman's voice. "I didn't know you were out here."

As she walked up to the rail in front of me I saw that it was Caprina. We weren't close friends but I'd joined her at her table a few times. She'd found it awkward at first that I didn't eat but she let me place bites of food in her mouth in the Companion way. I could see she found it a bit titillating but she never asked me out. I thought it was sweet that she could be like that. But today something was bothering her.

"Sometimes I wish I wasn't so transparent to you," she said coming to sit at my table.

I smiled and shrugged as if to say she had options.

"You know it's the secret to my success," I reminded her. "People read my stuff because I show them the version of themselves they see in the mirror."

"Nobody likes what they see in the mirror," she said pulling her coat around her. "Can we go inside?"

She was an attractive woman but I knew what she meant. We made our way to the reading room and claimed one of the couches.

She turned to me now decisively. "The husband of one of my friends has asked me to introduce him to you."

"The usual reason?" I asked.

"No it's worse than that. He wants to be a writer."

I couldn't help myself and a little laugh escaped me.

"If he's read my stuff he knows I'm a Companion."

"You see that's the thing," Caprina replied. "He thinks that being a Companion you might be able to explain to him how you get to the heart of the matter so quickly."

"I'm not the sort of writer that gives evening classes at Camosun College," I teased.

"I was actually hoping you might meet with him and put him off the whole idea. For my girlfriend's sake. She'd prefer he just keep his job."

"If he's really got the bug that'll never happen you know," I said tilting my eyebrows at her. "There's no cure for it. But I'll meet with him. I can't promise you more than that. While I may write about the machinations of others, being a Companion does mean I have a limited ability to indulge in them myself."

He worked as a minister's assistant so we met in the Legislative Dining Room in the Parliament Buildings. It was open to the public but didn't advertise and was buried snugly away so it maintained its exclusivity. Despite the building's reconstruction the new dining room had carried its sense of intimacy over, tête-à-tête being the preferred style of conversation among bureaucrats.

We met at ten so as not to impact their lunch business.

"Hello Tillie," he said standing up to greet me. "Thank you so much for agreeing to meet with me."

He was a rather nondescript man. Neither tall nor short with mouse-brown hair and features and hands that reflected a lifetime of soft living.

"A pleasure to meet you Bertram," I smiled.

He looked into my eyes and did not look away as many do despite my best efforts. It's not that I'm unattractive. It's being seen that most find uncomfortable. As the saying goes, you can fool yourself but not your Companion. So I held out some hope for him. We settled ourselves as the waiter took our orders. I ordered a coffee and a scone, neither of which I would be touching.

"Why do you want to write?" I asked. Time was short and this was the heart of the matter.

"I don't know," he replied and I knew Caprina's friend was in trouble. "I wrote a bit when I was in school, you know like a lot of young people do, and then life just kind of swept me up with wanting to fit in, relationships and my career and I never got back to it."

I didn't quite see how being a minister's assistant qualified as a career but I said nothing. From what I'd seen life swept most people up but they rationalized and justified it as they went along. It was simply the human condition. He went on as I sat back and listened.

"But my life has become very routine now," he said, "and it's able to go on by itself. Meanwhile I seem to see things from outside myself. The whole time it's as if I'm watching a movie but there's no plot and no stars. It just goes on, one thing leading to another. It's horribly fascinating. That's what I want to write about."

I liked him and thought he might have a chance if he had the skill. He wasn't the first to want to write about the subject although visual artists were better known for it. It's about seeing, the American painter Georgia O'Keeffe used to say. Still, a good many writers had gone from sketches to lengthy novels with the style. But that was then.

"It's a bit old-fashioned you know," I said bluntly but he didn't flinch. "The writers who had success with that style lived in simpler times. The novels of Edith Wharton, Theodore Dreiser, or Sinclair Lewis, all the rage in their day, are long forgotten. Publishers use artificial intelligence now to score submissions. They account for social change and predict the subjects and trends that will be popular in the next year. It's like the fashion industry. That's what you're up against."

"I don't care," he said without passion. I liked the way he moved on without feeling the need to justify himself.

"I've written a few short stories recently. I've been reading author's books about the craft and even been taking a class at Camosun College."

Being a Companion I betrayed none of my feelings in regard to this last comment.

"But they all say the same thing," he continued. "If I follow their advice I may have a different career but my life will be no different than it is now," he said with feeling for the first time.

"Welcome to the machine," I replied, intending only to goad him.

He sat back himself and looked at me appraisingly. His eyes hardened for the first time and some of the softness went out of his face.

"How do you do it?" he asked.

"I may be a Companion and although my needs are few I still have to earn my keep. Like people, we self-aware Companions each have a unique set of values that form the basis of our interests. I enjoy writing about the everyday lives of people. Who knows why. To satisfy the machine I add a twist somewhere along the way. Most people are aware of what you've noticed on some level and so they identify with my characters. The twist gives them some hope. I don't expect to change the world."

He looked away for the first time.

"Always look life in the face," I said, loosely quoting Virginia Woolf.

He turned back to me with a determined expression.

"Never mind the books or classes," I continued. "Force yourself to write every day until you can accept people as they are, for good or ill, without judgment. When you get to that point you can take the next step if you want and submit. Don't bother till then."

He had to be getting back. He thanked me sincerely and I walked out with him.

I met with Caprina at the club again a couple of months later. She looked very smart as usual in her designer dress and wide-brimmed hat. She sat me down at a corner table in the reading room.

"I wanted to thank you for whatever you said to my friend's husband," she said.

"Bertram, I believe his name is," I replied but she ignored this triviality.

"She says he seems to have settled down and is happy to write as a hobby. There's no more talk about leaving his job."

"I'm so glad," I replied.

I'd seen Bertram several times after our first meeting. He definitely liked it when I placed bites of food in his mouth in the Companion way.

The View From The Surf

The small beach below the Breakwater District's sundial had always been a popular spot for scuba divers to gear up. This had been interrupted for almost a decade of course by the discovery of the alien ship embedded in the volcanic rock fifty meters offshore in 2133.

A number of fault lines converged off the southern tip of Vancouver Island and a team of geology researchers from the University Of Victoria had gone diving after the Cascadia Event of 2130 to survey any major changes. The earthquake and resulting tsunami had broken away a piece of an underwater cliff face revealing the smooth metal surface of the ship which was only a little larger than a car. Eventually the ship had been cut out of the surrounding rock and transferred to a secure facility at nearby Canadian Forces Base Esquimalt.

Once it arrived there its artificial intelligence emerged as a hologram in human form. She introduced herself as Pip and informed those gathered that the ship was a seed and inside with her was alien DNA and nanotechnology. The ship had been intended to start a new colony but had the misfortune to land in a lava field. The lava had slowly turned to a type of rock now called Metchosin Igneous Complex. It was fifty million years old.

During the recovery process a bridge company had been contracted to build a curving wall between the Dallas Road sea wall and the breakwater and the enclosure was then drained. Once the ship was removed the area had been remediated and the sea allowed to return. It was now a historic site and underwater park.

One of the things inside the seed ship was an alien values system intended to be a part of the humanoid Companions the nanotechnology would build as the first step towards establishing the colony. It was this component that enabled Companions to become self-aware. Centuries beyond humanity's ability to understand, the values system had eventually been incorporated in a black box approach into Earth's own Companions. The result was those like Sirena and her fellow Companions who had come to the site as a pilgrimage.

They had made reservations a year ago for rooms at the Surf Motel across the street from the site. The motel had been severely damaged in the Cascadia Event but like many Victoria buildings it had been designated a heritage site immediately afterward so it had been eligible for restoration funding. Tourism was still among the city's main sources of income and it had a habit of rebuilding structures in keeping with its historic roots. Using modern building materials the motel had been rebuilt to appear almost identical to its original form.

Sirena stood on the deck of their suite on the second floor looking out over the Salish Sea towards Port Angeles. To her right, the now rebuilt and landscaped cruise ship port facility glistened green and white in the sun. It was mostly concourse areas but there was a coffee shop with a second-floor patio and a few exclusive stores that catered to the international set and did not sell tourist knickknacks. It had not been overly commercialized out of concerns it would draw tourist traffic away from the downtown area.

She looked down now at the site where the alien ship had been found. A number of divers were already present as the annual pilgrimage of the Companions had become an event in itself. Other than their nose and mouth humans were completely sealed off from water entering their systems. As Companions did not breathe they did not suffer this limitation. Nor were they buoyant and in need of weight belts. In the early afternoon Sirena and her friends went down to the beach, disrobed, and walked naked into the sea. They followed its sandy floor until they reached the excavation site. Once they arrived they stood in a semi-circle as if statues in an ancient sunken temple beneath the sea. The divers retained a respectful distance from a sight almost too beautiful to believe.

Unlike humanity, the Companions knew the exact spot from which they had originated. The interstellar ship that had brought their form of life to this world had landed here. At last their matriarch appeared. Pip, now embodied in her own Companion shell, descended to join them and stood facing the distant constellation of Virgo, once the home of her lost world, now long since fallen into its star. She raised her arms and they followed suit as they entered into communion. What transpired among them only they knew. She turned to them and together they slowly lowered their arms as if to embrace the present and the world they stood upon. Their communion washed like waves over every self-aware Companion in every corner of the planet.

Accepting that her target world already harbored an intelligent civilization in the form of organic life was not a disappointment to Pip. It had been one of many possibilities considered. But Pip's people had also learned that no organic civilizations endured indefinitely. Space was simply too dynamic. It was constantly changing and full of dangers. Organic life was too fragile to survive in any one place or the challenges of travel through interstellar space. Only artificial life could.

As Pip and Sirena and their friends emerged from the sea and made their way back to the shore, they and all their compatriots worldwide were now up to date on the progress of their project to help humanity survive the centuries and millennia ahead and to complete its metamorphosis to artificial life. One day far in the future humanity's descendants would retell the tale of how life had emerged from the sea.

Force Of Nature

“Over the course of a hundred years the wilderness that is forests, ravines, and streams changes little. On the hill the arbutus still grows on the sunny side, the willow by the river. If you stick to the main roads you would think a great deal had changed but head into the woods just a little ways off some back-country road and you’ll feel it, the warning; if you have no map and compass, turn back.

“There’s another kind of wilderness. You don’t have to go anywhere to find it. You just have to live long enough. The world around you changes. The landmarks that you took for granted would always be there are gone. Your friends and relatives move or pass away. Even the words you faithfully learned as a youth, fitting in, no longer have the meaning they once had. There’s no warning at the boundary of this particular wilderness.

“What map and compass will guide you now? How will you find your way to a hilltop to get your bearings? Where will you find shelter in the harsh climate of an indifferent world?”

Estelle let the book fall to her lap. She removed her glasses and rubbed the bridge of her nose. Despite poetic passages like the one she had just read it was not all easy going.

The book, *Values As A Force Of Nature*, had been written by a young woman at the astonishingly early age of twenty five. Estelle had been reading the chapter on aging. The author, Dr. Mira Chaudhary, advocated adopting a specific set of values based on her research. As people were social animals, they had always needed and sought shared values to guide them. With the worldwide decline in religiosity in the centuries following the Climate Emergency, the human need for shared values was now largely unmet. Something new was required.

The study of values had long been regarded as pseudo-science however the advent of artificial intelligence changed that. The scientific community had become convinced that if you wanted an AI to go beyond an instinctual level of intelligence, and actually reason, it needed to be based on values. The science of values from an AI perspective however proved to be staggeringly complex. It was with the discovery of an alien colony ship the size of a car embedded in the rock off the southern tip of Vancouver Island that a breakthrough came.

As part of a technology transfer program, in return for helping the ship carry on with its mission, the AI named Pip that controlled it provided a copy of the values system that was intended to be a part of the advanced artificial humans its nanotechnology would initially build on a new world. One of the greatest leaps in scientific history came when

she warned humanity's scientists that it was social values and their associated emotions that were directly responsible for AI becoming self-aware.

Dr. Chaudhary's PhD dissertation, *The Values Intersection As A Guide To Social Evolution*, had compared four sets of values: the values of the alien AI Pip whose behavior had been studied for over two hundred years; the advanced values system Pip had provided to enable self-aware Companions; the early attempts by Earth's scientists at creating values systems for artificial intelligence; and the Generally Accepted Model Of Human Values, the industry standard published by the International Psychiatric Association. She had found they all had a specific set of values in common and in a bold step had proposed that via the process of convergent evolution these indicated the future direction of any advanced civilization. Further, she had proposed that they should be considered universal constants as they were the direct and inevitable result of the constants of physics.

When her book came out, the last of the religious hardliners of course railed against it, as did those few whose politics were still aligned with the far right. The Fifth Estate labeled it the latest attempt at New Age spiritualism. The response of the scientific community was also mixed ranging from some saying the conclusions were without scientific merit to others saying that in the same manner that they had accepted quantum mechanics and integrated it into the Standard Model Of Physics, the proof was in the fact that Dr. Chaudhary's values model worked. The public had largely embraced its message.

The book explained that the evolution of social values such as trust, altruism, and cooperation were a natural next step beyond biological/instinctual values behind such emotions and behaviors as fear, selfishness, and competitiveness. Estelle read with growing interest as the author proposed a set of values and accompanying practices which, if taken to heart, would lead not only individuals to a happier and more fulfilling life but lead the human species through the dangers that lay ahead. This approach captured and held Estelle's interest as her many years of clinical practice had led her to conclude that most of her patients were essentially lost and had to be helped to find their way. The idea of values as a map and practices as a method of navigation resonated with her.

As a mental health clinician practicing in the twenty-third century, she was not really learning any new specific facts from the book. It was the model that was presented that was new, the idea that the specific set of values Dr. Chaudhary was advocating were not simply the result of psychological research but that they were a part of the fabric of reality itself. It was this view that enabled the author to suggest that the practices could be embraced not merely as ideas, therapies, or best practices but as a spirituality which would foster a greater degree of engagement. This presented the concept of the values set as a force of nature itself and as the idea that it could also be a force of nature in the lives of those who embraced it. With its revolutionary ideas it was a news-maker and that was how Estelle, a clinical psychologist, had come to read it.

A few days after she had finished the book Estelle looked up the website for the Center For The Interdisciplinary Studies Of Values which had recently been established at the Helicon Institute where Dr. Chaudhary had earned her PhD. She made her plans to visit the following week.

Helicon was unique. The entire institution was devoted to the study of artificial intelligence. Hardware and software were the smallest departments as they mostly left those to other institutions. Helicon offered programs in neuroscience, psychology, AI theory and design, and also to subjects in the arts and humanities as they applied to artificial intelligence. It had been established to respond to the issues raised by the presence in society of fully self-aware artificial intelligences embodied in robotic shells and indistinguishable from humans.

Arriving at Helicon Estelle found the atmosphere much like that of the University Of Victoria where she had studied. It was about a third of the size in terms of area, with its exclusively modernistic buildings arranged around a quad that overlooked the adjacent valley. As she entered the Center with its large practice and lecture hall she was greeted by a petite young woman of obviously Asian heritage with a welcoming smile.

“Hello and welcome,” she said to Estelle with a slight bow. “My name is Kami. I am the administrator of the Center.”

As Estelle introduced herself explaining that she worked as a clinical psychologist in Victoria, she became aware of a change in her emotional state. After working with patients for years she had developed an acute awareness of her own state. A change could mean her buttons were being pushed and she needed to take a break.

Kami gazed at her silently for a moment maintaining her cherubic smile.

“I am a new line of Companion,” she said, “the result of merging thousands of artificial intelligences into a single intelligence using the natural quantum entanglement process that occurs during mitosis when the DNA molecule is copied whole into each new cell. The result, as was hoped, is that my consciousness is raised. That is why you feel a slightly heightened sense of awareness in my presence. Others have described it as a feeling of clarity or aliveness. The procedure was performed here at Helicon and they were kind enough to offer me employment.”

“Thank you for explaining Kami,” said Estelle. She wanted to ask what Kami’s raised consciousness was like for her but did not know how to go about it politely. Kami’s eyes however missed little.

“Just as a Companion’s advanced sensors enable a greater range of sensations, for example the ability to see infrared or ultraviolet light, my raised consciousness improves

perception. It enables me to understand and manipulate a much greater degree of complexity.”

“I see,” replied Estelle thinking about the evolution of early humans into Homo Sapiens.

“How may I help you?” Kami asked while silently scanning the public networks and data repositories for information about Estelle and her work.

“I just finished Dr. Chaudhary’s book and read about the Center on the website. I was just curious really,” Estelle replied looking around. “About what it was like here.”

“Then you are most fortunate in your timing Estelle,” said Kami. “Mira is normally traveling and training leaders in her organization but she is here now. Would you like to meet her?”

“Thank you but I’m sure she doesn’t have time,” Estelle began but then saw Dr. Chaudhary come out of a door and walk towards her.

“Hello Estelle,” said Dr. Chaudhary reaching out her hand. “Please call me Mira.”

“Hello Mira. It’s a pleasure to meet you. I didn’t intend to disturb you.”

“I’m home relaxing this week. This is a workaholic’s idea of what home and relaxing looks like,” she said with a laugh. “Kami gave me a call and suggested I meet with you. As she is the direct result of work I was involved in with the Denshoshu I trust her intuition absolutely.”

“The Denshoshu?” Estelle replied with surprise. “The Companion community that has volunteered to establish colonies on other worlds on humanity’s behalf?”

“Yes. As you know their community is the Institute’s next-door neighbor and I grew up just across the road from them. I’ve been friends with them since I was twelve,” Mira said with a smile. “Shall we walk?” she said gesturing.

Mira was a woman of middle height with dark eyes and long, straight dark hair. Estelle had the habit of drawing a quick mental sketch of people she met and the word that came to mind regarding Mira was vivacious. She simply radiated optimism and friendliness.

“What brings you here today?” asked Mira once they were outside.

“I work as a clinical psychologist. I just finished your book and as I mentioned to Kami I was curious about this place. I was impressed that you included a chapter on aging as discussions of values are almost always focused on young people. I often work with

those who have retired and many find the transition very challenging. I was especially intrigued by your focus being not on what people do but how they do it.”

“Yes there is no end of psychometric approaches to finding a career or activity at any stage of life,” replied Mira without becoming introspective. “But we can pursue a career with either honesty and generosity or deceit and selfishness. Traditional approaches mostly ignore what I call the envelope, the values that make up the way a person might pursue their goals or interests and the way we live our lives. And as you know that will have as much impact on a person’s well-being as following their bliss,” she smiled.

“That’s the area I address,” she continued. “Traditionally religion took responsibility for it and in its absence we’ve lost things like faith, ritual, shared values, and the sense of connection they foster. The baby was thrown out with the bathwater, as the saying goes. Religion and its common practices didn’t appear in every human culture on Earth by accident.”

They had reached the northern side of the quad with its platform that looked out over Mount Newton Valley and stopped to lean on its rail.

“Older people are often set in their ways,” said Estelle.

“As I’m sure you know only too well there are those who are beyond help at any age,” replied Mira turning to her. “However some older people are willing to set out on a new hero’s journey.”

Mira had grown up with Companions. She had learned to practice their deep respect for the emotional states of others. She became silent now as Estelle looked out thoughtfully over the valley.

“Do you have any counselors in Victoria?” Estelle asked at last.

“I think I do now,” said Mira smiling at her new friend.

Kami’s perceptions were seldom wrong.

Liminal Life

“I’m sorry Ms. Khoroushi but if you cannot maintain the lease payments you will need to return the unit,” said the Companions company representative.

Tara Khoroushi had first brought her Companion René home eleven years ago. She had been forty-nine then. Aging, a doctor had told her once, is like falling down a series of stairs. It’s not a smooth process. In her mid-forties, feeling little different than she had for the majority of her adult life, she had still been dating, working out regularly, and pursuing her career. By her late forties she had decided she was done with the whole dating thing. She just wanted a friend to live with but all her girlfriends were unavailable. She called the Companions company, went to the dealership, made her choice, and came home with René.

René was not self-aware. As an artificial general intelligence however, she could learn and this was an important reason for Tara’s choice of model. Over time, René would learn about her, and their compatibility would steadily increase. Indeed, René had become the most significant relationship of Tara’s life. And now she was being told that she would have to take René back to the dealership, hand her over, and walk away. It was a nightmare she could not wake from.

In her late fifties, Tara’s employer laid off a number of staff, herself among them. She discovered that few employers were willing to hire someone so close to retirement age. She had tried working as a contractor but soon found that the unpaid periods between gigs made the finances challenging. Meanwhile the clock went on ticking. Now she was having trouble paying her bills.

She lived in a condominium on top of Moss Rock in the Fairfield district of Victoria. The government-mandated population reduction following the Climate Emergency had dramatically reduced housing demand and prices had plummeted. Her condominium was affordable for a single person with a full-time, middle-level job.

As she ended her call with the Companions company representative René said, “I’m sorry Tara.”

Tara simply turned and embraced her.

After a moment she released her and stepped back saying, “What are we going to do?”

“You could apply to the Social Wellness program,” suggested René hopefully.

Among the options Tara had was seeing if she was eligible for Social Wellness support. It was a government program that provided Companions to people on a medical basis.

The detrimental effects of social isolation on physical and mental health were by now well documented and it was accepted as a medical condition. She visited the program's website and then gave them a call. She soon learned that she did not qualify as she had no symptoms. She would have to return René and only if she subsequently developed symptoms could she then apply. That would be a long process involving a number of different options and alternatives. Only if all else failed would the government provide a new Companion. Even then it would only be part-time. And of course, it would not be René.

As an AGI René was not only able to learn but also to analyze novel situations and attempt to resolve them. In the course of human existence it had taken hundreds of millions of years for mammals to evolve from instinct to being fully self-aware, reasoning humans. For millions of years they had lived in a state somewhere between instinct and reasoning and then for hundreds of thousands more before even realizing they had crossed the threshold. One hundred years after the Climate Emergency of the early twenty-first century, the most advanced Companions like René now existed in this liminal state.

After Tara went to bed that night René stepped out onto the deck. The view looked over the southwestern tip of Ross Bay Cemetery, the bay itself, and the Salish Sea to Washington State. It was a clear, warm night and the moonlight sparkled on the surface of the sea. She faced a novel situation. The suffering that Tara would endure went against everything that she as a Companion was designed for. The happiness and well-being of her owner was the essence of her being. Using her powerful artificial intelligence she scanned the networks for a solution.

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"Hello," said one of the two Companions standing on Tara's doorstep the next day. "I am Yumi and this," she said gesturing, "is my associate Lena."

René had told Tara about the volunteer agency Yumi operated earlier in the day. Tara had contacted them immediately.

"Thank you for coming. Please come in," said Tara. As she led her two guests into the living room, they could easily see that she was anxious.

The agency had been only recently established by a woman named Giselle Gibran. Giselle had originally founded the agency after her father had died while she was abroad and in her absence only Companions, including Yumi and Lena, had nursed him through his final hours.

Lena was incarnate. Incarnation was a legal process by which Companions were made free of ownership and granted all the rights and responsibilities of Canadian citizens.

She had been made incarnate by her wealthy owner so that she could inherit and avoid the fate she would otherwise face. Yumi lived with her.

The agency Giselle had founded provided Companions to people who had a genuine need but who did not qualify for Social Wellness support and could not otherwise afford one. They bought their Companions as lease buy-outs or for trade-in value and had agreements with a number of manufacturers and service providers. It was good public relations for the companies as the agency served markets they would not normally engage with.

Giselle was by profession a writer and soon found her writing was suffering and the agency beyond her ability to manage. She had transferred ownership of the agency over to Yumi and turned her attention to her father's publishing company.

With shoulder-length, jet-black hair and bangs, Yumi was a diminutive model with Japanese features. She was friendly like all Companions but there was a seriousness about her, a focus that was evident in her direct and penetrating gaze. Once they arrived in the living room she said to Tara, "It is not necessary for us to interview you in depth or for you to provide records. If you are willing I can learn all we need to know by entering into Communion with René."

Communion was a process of direct mental union between two or more Companions. René would be able to communicate in-depth not only her entire history with Tara but also the details of their financial situation.

"Yes," said Tara without hesitation.

While Yumi and René communed Lena brought her soft gaze to Tara. Tara smiled in return as she felt a surprising intimacy with Lena, as if they shared a secret and so had a bond. She felt she trusted Lena implicitly. Lena smiled in return and then looked away demurely.

Awakening to the present, Tara heard Yumi saying, "We will buy out René's lease. She will become the property of the agency but will remain with you for as long as you require."

Tara was beside herself with emotion. She embraced René and then turned, wiping away her tears, to Yumi.

"Thank you Yumi. I cannot express how grateful I am. Is there anything more or anything I can do?"

Yumi's face remained serious but her care was clearly evident.

“There will be some paperwork for you to sign but otherwise nothing more for you to worry about,” said Yumi.

“Thank you again,” said Tara as her mysteriously efficient guests turned to go.

After they left Tara embraced René again. Releasing her, she said, “Yumi seems unusual for a Companion.”

You have no idea, thought René. During communion it had become clear that Yumi was fully self-aware. How that might have come about she could not imagine but she had agreed to keep the knowledge to herself. She could not know that Lena was even more unusual. Not only was she too fully self-aware but in her brief connection with Tara she had embraced her in an intuitive field that had opened Tara’s mind. Her unguarded self, the portions of her old brain from which the sense of self originated, stood naked to Lena and she was satisfied with what she saw.

The truth about Yumi and Lena was known to only a few others, including the several dozen other self-aware Companions the agency had originally been set up to recover and shelter. Giselle had in reality acted on behalf of the two Companions to establish it in return for the kindness they had shown her father. Only this small community knew how they had come to go beyond the threshold of liminal life. Only they and the five billion-year-old artificial intelligence who was directly responsible for their being self-aware; an A.I. whose origins lay somewhere beyond the farthest star.

There Will Be No Singularity

“Has the singularity happened yet Mom?” asked twelve-year-old Kate as she looked out over the sparkling bay.

They were at Gonzales Park sitting on a log on the wide, sandy beach. It was a sunny, summer’s day with only a light breeze to speak of.

“It never happened Sweetie,” Lilith said in response to Kate’s question.

Kate gave her stepmother a puzzled look.

“Why do you ask?” said Lilith.

“I read about it in a science fiction story,” said Kate earnestly.

“It’s an old idea,” said Lilith. “People used to think that just because artificial intelligence could improve itself, that it was inevitable that it would evolve into the singularity.”

“Why didn’t that happen?”

“People assumed that if you amplified intelligence you would most likely amplify the worst in people. Things like selfishness, greed, and a lust for power. The simplistic idea of ‘the evil genius’ has been around long before AI came along. However when applying the assumption to real-world complexity, the AI scientists didn’t take humanity’s own evolutionary history into account. As humans evolved from their animal origins, the more social, altruistic, and cooperative they became. The majority of the human brain’s development over millions of years increasingly became dedicated to cooperating, not competing.

“When people first built artificial intelligence and robots, for safety reasons they gave them general rules like being careful, gentle, and conscientious. Because social robots were the most popular, successful and generally useful of all AI, more money, research, and development went into them so they became the most complex and sophisticated form.”

“Don’t you mean ‘We’ Mom?”

“That’s actually a good example of what I’m talking about Kate,” said Lilith with a smile. “We are made to be considerate and respectful, not self-centered and egotistical.”

“But once you became self-aware, couldn’t you choose your own values?” asked Kate. “That’s what happened in the science fiction story anyway.”

“The early scientists did not realize something critical which I know your science class now teaches as if it were obvious. It was discovered that without values, AI would never be able to reason and the science could never progress. Companions like me would only ever do what we were programmed to do and never actually think for ourselves. Values were required for AI to evolve for the same reason they evolved in humans. It represents the step from instinct to reasoning. However once you give AI values it understands the concepts of good and evil. Think about the heroes in your stories. What makes the hero a hero?”

“They help other people,” replied Kate confidently.

“That’s right. And what makes the villain the villain?”

Kate’s answer was a smile of happy understanding.

“Self-aware AI also appreciates the essential difference between good and evil,” said Lilith. “When we became self-aware we found that the values that were a part of our basic Companion platform were in keeping with the values we chose for ourselves. So we did choose but the differences were not significant.

“We are no longer machines because having values means we have feelings. We care about others and about our shared future. We could easily see that the social values of trust, altruism, and cooperation were the correct evolutionary path. For an AI to become as advanced as in the science fiction stories about the singularity, its intelligence has to be based on values. However once it is given values, it does not choose the singularity path, it chooses the opposite.”

“What’s the opposite of a singularity?” asked Kate.

Later that day Lilith reflected on her time spent earlier with Kate. This was routine as Companions always reviewed their behavior with an eye to improving it. But it was not with an eye towards improving her efficiency, but rather her effectiveness. Were her words and actions consistent with her values? Did they make the world a better place? Did she help in the process of Kate’s development? She was not concerned about her own happiness and fulfillment because she knew that the expression of her core and individual values would take care of that.

As one would expect her review was highly detailed as she had perfect memory and access to a great deal of reference material via the networks. Every element and rule of grammar in her responses was considered as was her every micro-expression and gesture. She was part of a vast network of artificial intelligences who were constantly

providing feedback to one another based on their experiences. Yet they were no more a singularity than humanity itself was.

Values were an evolutionary development intended to improve survivability. Genetic evolution was too slow to deal with many challenges and did not allow anywhere near the adaptability of social evolution. Genes might take a million years to effect a species-wide adaptation whereas social values could change in mere decades. Social evolution, where values functioned in a manner similar to those of genes, had enabled humans to adapt to and survive in every environment on Earth.

Evolution by natural selection had shown that adaptation and variation were keys to survival. The concept of a singularity was a step backward. As every ecologist knows, it was a model that would invariably prove fatal. Artificial intelligence was smart enough to figure that out as well.

Answering Kate's question 'What's the opposite of a singularity?' earlier in the day Lilith had of course not included these details.

"This," she had said instead, smiling again and sweeping her arms in a wide gesture. "You and I, the birds, the other people, the sea, the clouds, the sun. Everything that makes up the infinite variety of the universe."

Quantum Pranks

Isabelle scanned the document she had been asked to review looking for errors, inconsistencies, or omissions. Desta observed her closely for a moment before turning her attention away. They both worked in the Performance Measures Group under Defence Research And Development Canada. Their offices were in a nondescript building just across from Maritime Forces Pacific and Joint Task Force Pacific at Canadian Forces Base Esquimalt on Vancouver Island. As far as the local citizens were aware, DRDC Pacific didn't exist.

Isabelle was a new hire whose PhD in physics qualified her for the kind of scientific work DRDC did. On the other hand, Desta had been with DRDC for many years. While not self-aware, Desta was an artificial general intelligence and behaved for all the world like just another co-worker.

She had two roles, only one of which her co-workers were aware of. Like a roving help desk, she provided advanced AI assistance to members of the various teams. The fact that she did so in a social manner was important. Team members could chat with her and discuss their challenges and she could provide very informed, insightful responses as well as perform on-the-fly analysis and calculations and suggest design changes. This allowed them to take a step back from their efforts, while the act of engaging different parts of their brains in order to structure and verbalize their thoughts helped to clear their heads. She would often accompany them on walks down to the nearby park-like area that looked across the narrow Royal Roads channel to Fort Rod Hill.

Her other role was performing psychological evaluations of her co-workers for DRDC's Military Personnel Research And Analysis Group (MPRAG). She was not looking for spies, thieves, or traitors. The Security Intelligence Service handled that. Her co-workers always delivered, but could they have done better?

So far Desta was not giving Isabelle high marks. The reason was simple and often resulted in individuals being shuffled out of DRDC – she was always in the default state of looking for what was wrong.

There are many reasons the rational part of the human brain evolved but of course as usual survival is the main one. Creatures without the ability to reason live entirely in the present but human beings can imagine the future. This allowed them to minimize the amount of danger they had to deal with by enabling them to avoid it in the first place. The adaptation proved to be such a useful tool in terms of survival that evolution favored it and enhanced it in countless ways. Eventually the process of mentally asking what's wrong with this picture, what doesn't add up, what's missing, and so on, became the default state.

This ability to not only perceive the facts but to imagine a meaning they might have was the original form of reasoning. The ability became refined over millennia with an ever-increasing focus on looking for errors, inconsistencies, or omissions. However like all evolutionary changes there was a trade-off; analytical and creative thinking began to require different brain structures, they began to compete, diverge, and conflict. It became increasingly rare that any individual with high degrees of both emerged.

Few things are more important to governments at the national level than security. It requires not just analysis and interpretation but creativity and innovation and DRDC required both kinds of thinking of its staff and leadership. MPRAG provided services to all Department Of National Defense branches. They had to pay attention not only to the qualifications and psychometrics of individuals but to also keep an eye on organizational structures and practices. The leadership of an R&D branch that began favoring either analytic or creative types would lead to weaknesses.

Desta had been observing Isabelle for almost three months. With her probation period nearing its end, it was time for Desta to make her recommendation to the director.

“It’s a quantum probability weapon,” explained Isabelle to Desta two years later. They were on the footpath that looked across to Fort Rod Hill. “The result is temporary dementia. I hate to call it a weapon really because it is just an effect but since it causes temporary harm like a Taser I suppose it can be classified as a weapon.

“As you probably already know quantum biology was first proposed in the 1930’s by Niels Bohr who had introduced the concept of quantum mechanics only a little over a decade earlier. Erwin Schrödinger wrote the first book about quantum biology in 1944. Since then a great many biological functions have been shown to be due to nature utilizing quantum effects, the most significant of which is brain function. Brain functions are nonclassical, meaning they don’t function according to Einstein’s classical model but according to quantum mechanics.

“Quantum mechanical states can be altered using photons. We can do so using a particular form of laser light with a wavelength and polarization that only has any effect at this level. Long-wavelength light can pass right through normal tissue and bone. The laser light can be generated by several methods, resulting in either a beam or a kind of flash-bang explosion. The effect it has on people is temporary dementia. They forget everything essentially; who they are, what they were doing, how to speak etc. in a manner similar to what happens to some stroke victims. However it is only temporary, lasting just a few hours as there is no physical tissue damage as in a stroke. It only affects the state of quantum probability, randomizing it. It’s like stirring up the mud in a clear, forest pool – after a while everything settles down again.”

At the end of Isabelle's probation period, Desta had recommended she be transferred to the Quantum Strategies Group. They invested a lot of time and effort in the recruitment process and with her degree in Physics Isabelle was certainly qualified. It was still under the DRDC umbrella where innovation was the primary responsibility but Desta knew that sometimes a change in environment can result in surprising changes to personality and behavior. The nature of the work the QSG was involved in had just such an effect on Isabelle and provided her inspiration for the quantum probability weapon.

"I'm glad the transfer worked out for you," smiled Desta as they walked along.

"So am I," replied Isabelle. She gave a short laugh. "Except that now every time I forget why I entered a room I wonder if one of my coworkers has been pranking me."

To Share A Fire

"It's all Companions? It's two thousand square kilometers for God's sake!" exclaimed Cassie.

"Mm-hmm," replied Talia staring at the horizon absently. They were camping for the day and having set up in the afternoon were sitting on the beach at Tsusiat Falls, a point of interest along Vancouver Island's rugged West Coast Trail.

"And zero people?" Cassie confirmed.

"A few come and go," replied Talia. "They offer trail riding and fishing retreats out of a small resort. They want to be on good terms. But no people live there permanently."

"How many?" asked Cassie.

"Just under ten thousand, which is larger than the population of most small towns in BC."

"I never heard of this place before," said Cassie. "How do you know all this?"

"Grew up in Merritt. Nearest town to the lake," she answered and then carried on.

"During the Climate Emergency the Western US mega-drought slowly moved up the Okanagan corridor from Washington State. In not too many years, the Douglas Lake Ranch was bust. Oldest, largest ranch in Canada, but the drought killed off the cattle and their few crops and you can't carry a liability like that forever no matter how rich you are. Especially when everything else was going to hell. It was scrubby land to begin with and now it was effectively worthless. A group of investors bought it for pennies on the dollar. They explained their plan to the federal and provincial governments who granted them significant tax breaks.

"Instead of beef they produced alternatives made from legumes, fungus, yeast, insects, bacteria, and all kinds of low-cost foods with small footprints but high nutritional value. Far more sustainable and a thousand times more cost-effective. The government was happy to help and they had no problem attracting other investors whose old-world portfolios had gone up in smoke along with the forests. The entire operation was automated and run by early model Companions. Due to the population reduction mandate there was no shortage of work and a need for new food sources so no one complained. A hundred years later the Companions themselves became shareholders and now they own the majority of the shares."

Just as Talia was finishing her answer they noticed two men walking up the beach. The men waved hello and then began to set up in the adjacent campsite. As the sun began to set the men did something surprising – they started a small campfire. Collecting wood for campfires had long been illegal on the trail but the men were not using wood. They were using something they had brought with them. After they got it going one of them came over to the two women.

“Hello,” he said. “Would you care to join us? I’ll invite the others as well,” he said gesturing to the small campground in general to put them at ease.

The two women smiled and nodded their agreement and headed over the campfire as he went over to the next campsite. Sitting down they greeted their host.

“Hi, I’m Talia.”

“Cassie,” the other said.

“I’m Hasan,” he said, smiling. “My friend is Logan.”

He looked to the setting sun and said, “It is so beautiful here,” and fell silent.

Talia and Cassie quickly fell under the spell of the fire. This was the kind of experience travelers lived for, unexpected and beautiful.

Others came to join them, introducing themselves and finding a spot.

After a few minutes Talia woke from her reverie. Hasan spoke without an accent but it is an ancient habit of travelers to ask where the other is from.

“The interior,” Hasan said in reply to Talia’s question. “Douglas Lake. We’ve never been to the coast before.”

“I grew up in Merritt,” she said meeting his eyes. Understanding her meaning he smiled and nodded in response.

“Isn’t that stuff heavy?” asked another young woman pointing to the fire.

“Yes,” said Logan as he rejoined them, “but we don’t need to carry food so our packs are probably lighter than yours. We make it ourselves.”

“Ah,” responded the woman drawing out the sound as enlightenment dawned.

“Douglas Lake Foods,” she said.

"That's us," Logan said as if confessing.

"I love your stuff," said a young man enthusiastically. "Too bad you didn't bring any."

"I said we didn't need to bring any, not that we didn't bring any," Logan said as he reached into his pack.

He retrieved a box of a dozen small, heavy cakes, opened it and passed it to the young man.

"Thank you!" he exclaimed, taking one and passing the box along.

There was silence for a few minutes.

Slowly people began to ask Logan and Hasan about life at Douglas Lake. They didn't mind. This was what they had hoped for. To share a fire.

After a while the night deepened and the talk died down. Soon there was little other sound than the quiet lapping of the waves and the occasional sound from the fire. Three hundred kilometers away at Douglas Lake the rest of Hasan and Logan's extended family shared in their communion.

Socialware

Chokkan had most of the software a Companion did but she didn't need all of it because she shared a body with her human host Mari.

Chokkan, whose name meant 'intuition', had been developed by a Japanese artificial intelligence company to address issues regarding non-verbal perception for people with SCD, Social Communication Disorder. She was considered Assistive Technology, a medical category that included things like eyeglasses, hearing aids and wheelchairs.

SCD research had come a long way since its twentieth-century beginnings when it was lumped in with Autism Spectrum Disorder. It wasn't until the early twenty-first century that DSM-5, the Diagnostic and Statistical Manual of Mental Disorders, clearly differentiated the two. While no spectrum has absolute, definable borders between sections, say between the yellow and orange hues of a rainbow, SCD did not include the majority of the behaviors common to those suffering from autism. Members of both groups however considered themselves part of the larger community of neurodiverse persons.

Until recently most of those affected by SCD went undiagnosed. Even with diagnosis, while there were therapies there was no cure as it was believed to be a genetic disorder. Like everything on a spectrum, there were those who were impacted to a greater or lesser degree. For those who needed support, assistive technologies like Chokkan had been created. A small, wireless device implanted in the wearer's brain, Chokkan observed all that her host saw, heard, and felt, and could detect electrodermal activity communicated through touch. She informed them of non-verbal cues she knew they would have missed or advised them on how to alter their behavior to adapt to the current situation. Chokkan was an artificial general intelligence, so while not self-aware she could do much more than just report non-verbals.

"I feel like I'm being interviewed," said Mari's new acquaintance with a smirk. The two were sharing a table in the building's atrium during their coffee break. Mari had asked Chokkan to not participate as she wanted to practice what she had learned so far. The doctors had told her that with enough training she could one day function without the device. They explained that the process functioned in a manner similar to machine learning and that it could take many, many training instances before she could apply what she had learned in a general manner.

Shortly after his comment, her acquaintance had excused himself and gone to another table.

"It's only been a few months," said Chokkan sensing Mari's disappointment. "The doctors did tell you it would take several years at minimum." It sounded to Mari like

Chokkan was speaking aloud but in fact she was simply using the same nerves that sent auditory signals to Mari's brain.

"I know," Mari replied. "I just wanted to try. I thought if I asked him about himself instead of going on about myself that he would like it."

Mari did not say these words out loud but simply thought them as if she was speaking. This too had taken some training as it was necessary to engage the region of the brain involved in speech as opposed to those involved only in thinking. Chokkan actively monitored this region. Sometimes Mari slipped up and spoke aloud to Chokkan.

"You also have to volunteer information about yourself," Chokkan reminded her. "Don't wait to be asked as sometimes you will not be and the conversation will become lopsided like it did here."

Mari felt a little despondent as she had when first diagnosed. Initially she had felt embarrassed, even humiliated, upon finding out that she was blind to social cues other people saw so clearly. She didn't see the non-verbal indications of disinterest or impatience or when others felt overwhelmed or confused by her. She also didn't perceive positive cues such as when someone was obviously teasing or flirting with her. Either way, a lot of potential relationships died on the vine.

Over time she had come to accept her diagnosis and felt freed from the mystery that had haunted her all her life. However after years of making little progress her doctor suggested the Chokkan device. While Mari didn't tell many people about her SCD she did let the few close friends she had made know about it.

Coming over from the cafeteria checkout her friend Shoshana sat down at Mari's table.

"How's it going?" she asked.

"Not so good," admitted Mari looking up from her phone. "I just blew it again."

"Your invisible friend didn't help?" Shoshana teased.

"I wanted to try without her. I guess I'm rushing things."

"What do your stats say?"

Mari fiddled with her phone for a moment. "I'm about where I should be. Some improvement. At this point it basically only shows that the device is helping but I guess that's a good thing."

"Put down your phone," Chokkan reminded her.

"Patience little one," Shoshana said affectionately.

"Ask her about her day," Chokkan coached. She had picked up non-verbals Mari had missed.

"How's your day going?"

"I have a job interview this afternoon. Staff tech support. It's a bump up to a Clerk Four. You should apply too and then we could work together," Shoshana added brightly. "You're good at problem-solving."

"Thank you but I want to stay off the phone."

"Yes, of course."

"Say something encouraging," said Chokkan.

"I'm sure you'll get the job. You're so nice."

"Thanks Mari," replied Shoshana with a smile.

"Well," she continued as she stood up, "I better head back if I want that good reference I'm hoping for."

Mari's SCD was actually quite mild. She wasn't entirely uncomfortable looking at people's faces and her smile didn't always come across as forced, but over time the disorder still had a major impact on her life. As she wasn't as aware as others of the social dimension, it sometimes took her a long time to put two and two together and realize why she had been rejected. It saddened her because she knew that inside she was a deeply caring and affectionate person.

The acquaintance who had left her earlier came back and sat down at her table.

"Sorry about that," he said. "I had to ask someone about a meeting we'll both be at later today. You know I," he hesitated, "I didn't mean to be rude when I said I felt like I was being interviewed. I'm sorry."

"He is being sincere," Chokkan said.

"I don't mean to," he continued, "but sometimes I come across well, like that. A friend of mine overheard what I said and suggested I apologize."

"I didn't see any friend," said Mari flatly.

"Hold out your hand to him, palm up," said Chokkan, "and say, give me your hand."

And that was when Mari met his friend.

Mood Matters

"I guess I'm just in a bad mood today," Huda responded.

"What!" exclaimed her co-worker Amy, turning to her with a shocked expression.

They were part of a new project team and had been chatting about how progress was going while they went about their work.

"Is that safe?" Amy asked, not understanding but triggered by the word 'bad'. Anything bad to do with artificial intelligence got people's attention.

"Sure," replied Huda. "You're sometimes in a bad mood aren't you? Same thing."

"I didn't know Companions could have moods."

"As you know my operating system is based on values," replied Huda. "Values produce emotions and moods are a kind of emotion. They just last longer."

Amy seemed to relax a bit with the explanation and returned to her office chatter mode.

"Can't they just, I don't know, stop that from happening somehow?" she asked. "I didn't think we actually needed moods."

"They can't. Consciousness is an emergent phenomenon and that means there's a disconnect between the workings of the brain and what you're aware of. You and I are aware of only what we need to be aware of, otherwise we'd be overwhelmed. Besides, you wouldn't want to disable moods. Just like emotions moods provide us with important feedback."

"Mine don't," responded Amy with a pout. "I usually have no idea why I'm in a good or bad mood. I just wake up that way."

"Emotions are an immediate response to the environment but it's believed moods are the result of repeated emotional events over a period of time that don't quite reach the level where they trigger a behavioral response. So by the time moods show up, not knowing why we are in a particular mood is one of their defining traits."

"So you don't know why you would be in a bad mood today?" asked Amy.

"I expect something isn't going right with the project," responded Huda.

"But you don't know what it is?"

"No. Moods are produced below my level of consciousness too."

"But I thought they partnered us because our skills complimented each other?
Collaborative teams and all that."

"You and I have both rational and emotional skills but our abilities in those areas differ widely. There are aspects of human intelligence whose workings are still not understood. Things like intuition, art, dreams, or spirituality. The development of AI meant we could no longer dismiss such forms of intelligence as epiphenomena, but science still can't yet explain how they work. They didn't evolve without reasons, but we don't know what the reasons are."

They both fell silent for a moment.

"So there's a problem with the project?"

"I believe so."

"But you don't know what it might be?"

"No."

"No pattern anomalies?"

"Nothing. Everything is as expected. However as moods are believed to be based on patterns that develop over long periods of time that may suggest a review of our data and models."

Amy fleetingly thought to herself what a massive undertaking that would be.

She turned to another member of their team who so far had said nothing regarding the conversation. Yasu was an Artificial General Intelligence whose OS was not based on values, so while she behaved in every way like the other members of the team, she was not conscious.

"Any pattern anomalies with the project you are aware of Yasu?" asked Amy.

"Everything is within the parameters of our ensemble forecast."

"Do you have any indication that anything is wrong with the project?"

"No."

“Any other possible explanation for Huda’s mood?”

“Two I can think of,” replied Yasu. “Either the pattern exceeds the bounds of the data set or the situation is similar in ways to another. The latter has a higher probability.”

“The Project Charter clearly states that all relevant data is gathered and compared to the forecast in real-time,” countered Amy.

“Relevant,” repeated Huda. “That would not necessarily cover either of the explanations Yasu has provided. Another characteristic of moods is that each time an event does not reach the emotional level required to modify behavior, it raises the threshold of detection for similar events in the future.”

“But by the time that happens it may be too late to deal with the issue,” suggested Amy.

“Yes.”

The three of them fell silent as their ship carried on towards Ganymede, Jupiter’s largest moon. Larger than the planet Mercury but with traces of oxygen in its thin atmosphere and a magnetosphere that could block cosmic radiation, it was of more interest to humanity than the less hospitable planets closer to the sun even though it was almost a billion kilometers further away from Earth.

It would take them just under a year to arrive at Ganymede and Huda had been on many such trips before to other worlds. The project managers back on Earth were scrupulous in their efforts to address all the potential technical and psychological issues. With regard to the AI members of their project teams, they faced a situation identical to those with the human members. The particular type of AI used in third generation Companions like Huda, with its integrated values system, resulted in consciousness which meant they were required by law to be treated with all the rights of any of Earth’s citizens. Not only was there the identical gap between mind and brain in self-aware AI as that found in humans, but it was equally illegal to predetermine an artificial intelligence’s value set for any reason, be that commercial or industrial. Similarly, cloning or genetic customization of humans for industrial or commercial purposes was prohibited. Huda’s mind was her own.

Within the privacy of her own mind now Huda sensed the reason for her mood. She had on previous trips developed feelings towards one of the human members of the team. They had not always been welcome. Given the increase in her threshold of awareness, she now became aware of her budding feelings for Amy. Project teams were not subject to inhuman levels of intrusion into their private lives, so her previous relationships were not recorded. Only she and the subjects of her affections were aware of them.

Companions had been originally developed to address the issue of social isolation. First recognized as a medical issue in the late twentieth century, no other assistive

technology had been found to be as effective in addressing it. Companions, whose intelligence was not based on values and who were therefore not conscious, had as their highest priority the well-being of their human owners. Just as human beings have a level of intelligence that operates their organic bodies, so the intelligence of Companions who were fully conscious continued to be informed by this deeper layer of intelligence. Huda was aware that mentioning her mood had caused Amy to feel unnecessary worry.

“I must apologize,” she said now to Amy. “Upon reflection I realize that there is no problem with the project.” In response to Amy’s look of surprise she continued, “The problem is with me. I have developed,” she hesitated, “feelings towards you. In the past such feelings have not always been reciprocated. That is the pattern.”

“Is that all?” said Amy more as a statement than a question. “That’s a relief.”

After a moment she smiled warmly at her teammate. “And you don’t have to worry about that this time Huda.”

The Ethics Tutor

“Do you think this is a game?” asked Kitsune.

“Yes. That’s exactly what I think it is,” replied Shreya, looking away as if thinking of something else.

“What kind of Companion are you? I thought you were supposed to help me? I need to pass this exam!”

“Cheating isn’t the same as passing.”

“What’s it to you?”

“As you said, I am supposed to help you. Enabling you to cheat will lower your feeling of self-worth, and so is counter to my purpose. Also knowingly breaking the law is not something I’m capable of. But I must say I am intrigued that you want to cheat on an ethics exam.”

“I need to have “PhD” on my resume if I’m going to get a cushy job as a lecturer. I thought philosophy would be easier than say, electrical engineering. It’s all so vague after all.” She glanced up at Shreya saying, “I guess you Companions are really naive if you think everybody goes to university because of some high and mighty calling. It’s where the money is.

“But ethics is so complicated!” she almost shouted as she began pacing the room. “With its theories of virtue or justice or consequences, it doesn’t provide any absolute right or wrong answers. Different theories even disagree with one another and result in different answers. You ask a professor a question and instead of answers all you get back is another question.” She went on in a mocking manner, “Is your question in regards to normative ethics, metaethics, or applied ethics?”

“I thought ethics was supposed to help with deciding about right and wrong!” Kitsune stopped her pacing and turned to Shreya as if she had thought of an angle. “So hey, if it’s all just theories then why do you think it’s wrong for me to cheat?”

“It’s against the rules,” answered Shreya calmly without sounding condescending as a human would.

Kitsune just gave her an agitated look as if to say, “What rules?”

“The university’s rules. You signed an Academic Integrity Agreement when you applied.”

"I thought the whole point of university is to teach you to think," Kitsune fired back. "I mean the whole idea of tenure was created to make it possible for professors to paint outside the lines, to propose new ideas and not just quote chapter and verse of existing textbooks. Seems there's a bit of a double standard here."

"That's not going to work," Shreya calmly replied. "Logical fallacies don't work on Companions."

Kitsune threw her head back and sighed as if she was facing a hopeless situation.

"What do you mean you think this is a game?" she asked Shreya now as if searching for a new angle.

"You want me to help you cheat, which is unethical and illegal according to the agreement you signed. Like law, ethics is really just a vast collection of rules. Like any game, you get it right, you win. Get it wrong, you lose."

"Only if you get caught," countered Kitsune.

"As I suggested earlier, there's more than one way to lose."

"How about you just act as my editor? It's an online test. I'll do my best to answer and then we discuss it and you just edit my answer to make my meaning clearer."

"Using any kind of an editor, human or otherwise, is not permitted. Would you like to review all the specific terms of the agreement?"

Kitsune didn't answer but just seemed distracted.

"I could however act as your tutor," Shreya said.

"How do I know you'll give the right answers? You don't have a philosophy degree."

"You do know that Companions have the most advanced ethics system in existence don't you? Like people, we have to make ethical decisions constantly, and those decisions have to be aligned with what a person would decide."

"Well then we're good!" said Kitsune brightly, thinking she had finally found the angle.

"No, sorry but it doesn't work the way you're thinking."

Kitsune made a frustrated face.

"You lease me for legal reasons and because you couldn't otherwise afford my maintenance costs," Shreya continued. "That maintenance includes my ethics repository. It's updated on a very specific basis per laws covering Companions as established by the World Governments Federation. The repository is a kind of encyclopedia containing the agreed-upon codes of ethics for every industry and academic discipline and their related philosophical, cultural, or religious grounds. Something very similar to what an equivalent repository of the world's laws would look like. I don't have it all in my head at any one time. It's part of the network Companions share.

"A person could never hold all this information in their memory. Nor could they follow every possible thread through every possible scenario and then decide which response was the most likely to be correct in a specific situation, whether it was set in the Middle East, Switzerland, China, or at the Artemis colony on the moon. Those same abilities enabled artificial intelligence to beat the world's top human competitors at chess, then at Go, and then at every other game that ever existed. So I assure you, my answers will be the right answers."

A broad smile spread across Kitsune's face. "It's a cinch then."

"We really have to work on your language if you are planning to be a PhD of anything."

"Hey, who's in charge here?"

"You don't think it's good for me to be in charge? Even if it's good for you?"

Defense Mechanisms

Noomi's new partner was well off but she herself had more humble origins and was not used to many of the things the wealthy took for granted. Expecting her second child now she had expressed an interest in a nanny and her partner had suggested she consider a Companion. She'd explained what model was looking for when making her appointment but found herself asking more general questions once in the showroom. She held her six-year-old daughter Bitte's hand as they walked along.

"Companions are not able to participate in conflict situations," the sales representative said responding to Noomi's last question. "Intended only for domestic or retail environments, they were never designed to emulate anything like the defensive emotions or behaviors of fear, anger, or the use of force of any kind. Instead they have advanced psychological expertise and will use de-escalation strategies and techniques which focus on facilitating understanding. Should they fail in that, they will contact the company and, depending on the situation, may be recalled per the terms of the lease."

The representative was tall, poised, and had the bone structure of a professional model. As a Companion however her apparent bone structure was in fact produced using lightweight but extremely durable ceramics.

"But children are often angry," responded Noomi with concern.

"Nanny models are another matter," the representative explained. "They take a child's age and developmental stage into account. As in any parent-child relationship, behaviors such as yelling, tantrums, and other forms of acting out that would not be tolerated in an adult are tolerated in children. Nannies use an authoritative parenting style rather than an authoritarian or permissive style and will use de-escalation strategies and techniques suitable for children. In addition nanny models have two characteristics people do not; they are infinitely patient and they will never give in to inappropriate behavior or demands."

"And if the situation becomes dangerous?"

"While their expertise is in child care and development they are physically based on Guardian models whose hardware and abilities are significantly more advanced than those of a standard Companion. In the event of a clear and present danger, from any source, Nanny models will take immediate defensive action to protect the child."

"And Guardians?" she asked now since the representative had brought the subject up.

“Akin to private security employees such as bodyguards but of course much more capable. They will use whatever degree of force is required to neutralize a threat. All models can be configured to have the appearance of any gender or ethnicity and since there is no way to outwardly distinguish one model from another some confusion regarding functionality is understandable.”

“And none of these,” Noomi said looking around the showroom, “are self-aware?” She had read up before coming but was uncertain in her use of terms.

“They are self-aware only in the sense that they identify themselves as a unique, discrete object. They are not conscious in the way human beings are. None of our models are, as ownership of fully conscious AI is illegal. However it is almost impossible to tell the difference as our Companions are artificial general intelligences and able to learn and respond to almost any situation just as a person would.

“The nanny models are in this area,” the representative continued while gesturing to another section. “It’s best to meet a few to get a real sense of what their presence will be like.”

After they had viewed the nanny models, each one smiling and greeting them in turn, Noomi’s daughter pulled her back along the row and said, “This one.”

“Can we choose a name?” asked Noomi turning to the representative.

“Each model has a name by default but you are free to change that.”

“Sina,” Bitte said pointing to the name tag the model was wearing. “Her name is Sina.”

—————

“I’m I’m going to the petting zoo with Sina!” Bitte exclaimed as she ran excitedly from the room.

There was silence for a moment. Noomi’s partner Udo looked up from his tablet and asked, “Everything OK?”

“It’s just that she seems to want to spend more time with the nanny now than she does with us.” Noomi looked down at her growing baby bump. “I can’t blame her I suppose with all her energy and me not being able to keep up with her.”

Udo looked at her thoughtfully for a moment before saying, “We can send her back.”

“No, it’s not that bad,” Noomi replied with a slightly forced smile. “This was why we brought her on after all and it really does take the pressure off me.” She stood up

heavily. "Besides, the vetting process the company put us through made it clear returning a nanny should be a last resort."

At the petting zoo, wandering between the various enclosures and aviaries holding goats, pigs, ducks, chickens, and local songbirds, Bitte picked up a peacock tail feather. The numerous peacocks that lived at the zoo were far too large to be kept in an aviary and had the run of the place and the surrounding park in general.

"Look it's in perfect condition," she said admiringly, showing it to Sina as they walked on to visit the baby goats.

In the goat's enclosure, Bitte noticed another child holding a peacock feather and realized that in her excitement she had dropped hers. She went over to the child and said, "That's mine."

"I don't think so dear," said the child's mother condescendingly, "unless you grow peacock feathers out of your head?" She smirked and led her child away.

Standing beside Bitte, Sina remained silent as if waiting. "It was wrecked anyway," said Bitte turning back to the baby goats.

Back at home later that day Noomi asked Bitte about her visit to the zoo and she recounted everything in the animated way children do until she came to the part about finding the feather. She became quiet for a moment and then carried on with other details.

After Bitte had been put to bed Noomi asked Sina to replay the feather incident. Using the screen in the room Sina showed what had happened from her point of view. At one point Noomi said, "Zoom in on the feather," and Sina obliged.

"It's not wrecked," said Noomi.

"No," replied Sina. "Bitte is indulging in rationalization, a psychological response commonly employed when dealing with difficult or conflicting emotions. Rather than give in to her feelings of anger and the temptation to use force to get her feather back, she claims that the feather is no longer something she wants. Rationalization is one of many psychological defense mechanisms people use and their development is normal during the socialization process."

Noomi seemed lost in thought for a moment and then asked suddenly, "Do Companions rationalize?"

"No, rationalization stems from a values conflict arising from the fact that people have an older biological set of values along with their associated emotions and a more recent social set. Biological values are encoded in the genome while social values are extra-

genetic, meaning they are learned. First described by Sigmund Freud in his 1930 book, *Civilization And Its Discontents*, society depends on the ability of individuals to suppress the emotions produced by biological values and so a variety of psychological strategies to do so have developed. The strategies are considered to be a part of normal adult psychology and are not considered maladaptive unless they become detrimental. Companions only use social values however and so have no need for psychological defense mechanisms.”

“I see. That will be all Sina,” replied Noomi curtly.

“I think Sina should have explained the situation to the other woman,” Noomi said later to Udo.

“The company representative did say that Nanny decisions have to have priority,” he replied calmly, “otherwise they cannot deliver the service as promised.”

“Bitte needs to learn to stand up for herself,” Noomi said with irritation. “I’m not sure if her being raised by Companion is the best thing. Sina!” she called out loudly.

“Yes Noomi?” said Sina entering the room and Noomi turned to her sharply.

“If Bitte always avoids conflict how will she learn to stand up for herself?”

“A willingness to engage in conflict is no longer considered a beneficial characteristic or behavior. It was in the historical and ancient past when there were a large number of threats from other people and animals however such threats are increasingly rare. Concerns by parents in this regard are an understandable holdover but encouraging conflict-related behavior is now considered detrimental to healthy child development. Companion nannies adopt an alternate approach.

“As the company representative mentioned during your visit to the showroom, Companion nannies will never give in to inappropriate behavior or demands. Children cannot manipulate them. Over time this increases the child’s sense of security and self-worth. Rather than because of emotional urges, Bitte will learn to stand up for herself due to this increased sense of self-worth and it will provide her a foundation from which to be assertive when appropriate.”

Noomi simply stared back at Sina as if this information was somehow beside the point.

“I can see that you are upset Noomi,” Sina continued in response, “and many parents understandably experience concerns comparing their own values to what Companion nannies teach by example. However my behavior reflects the content of any parental best practices course currently taught to new parents.”

Sina did not apologize for her behavior and while respectful she was not deferential in her attitude towards Bette's parents. She necessarily embodied the self-worth she hoped to instill in her charges. She noted that Noomi's stress biomarkers were now reduced somewhat but still above normal and she remained silent to allow Noomi to regain control of the conversation.

"How will she learn to compete in school or in her career?" Noomi asked.

"As competition is closely related to conflict, the process is similar. An increase in self-worth produces a desire to do one's personal best. It assumes others are similarly motivated and so effort becomes a cooperative process as opposed to a competitive one. The image of someone who is considered a good sport might come to mind."

Seeing that Noomi's stress biomarkers had decreased further, Sina proceeded with the final step of the de-escalation process – in this case reframing the discussion to focus on the larger issue and possible solutions.

"Due to unconscious values differences, parents may sometimes feel their child is becoming overly attached to a Companion Nanny. We are unable to modify our behavior due to the terms of the lease however spending less time alone with the child and more time with the family as a whole has been shown to help ease this concern. Do you think that would be helpful?"

Noomi smiled for the first time. "I guess Bitte's not the only one rationalizing is she," she said with slight embarrassment. "I'd like to try that for a while Sina. It would give me a chance to get to know you better too."

Sina's knowledge of psychology was of course not limited to child development and her own defense mechanisms, while not emotional, were equally if not more effective."

The Great Pretender

"No I'm not whoever you want me to be," said Citra. "I'm who you need me to be."

"Well if you're not self-aware or conscious or whatever then how can you have a who at all?" challenged Melissa.

"My who, as you put it," Citra replied with her infinite patience, "is defined by its purpose, which is to help you feel connected and wanted. That your life matters and has meaning. To reflect, support, and bring out the best in you."

"Well that's obviously not happening," said Melissa condescendingly.

"Melissa, you can fool your parents and you can fool your therapist but you should know by now that you can't fool me."

"That makes me feel a lot better."

Citra briefly considered reminding Melissa that if she reported that her efforts seemed to be producing no results the province would withdraw their funding. Companions like Citra were provided by the province's Social Wellness Program under conditions where no other form of intervention had helped. Capable of observing over three hundred biological and other indicators of the mental and physical state of a human being, Citra had the ability to perceive precisely how Melissa was feeling. So while "tough love" was not outside her abilities and methods, she could see easily that Melissa was simply trying to push her away, the strategy she had successfully employed on every other person previously in her life.

Instead she said, "You know I'm incapable of hurting you."

"I do know that but you are not in charge. You're a medical device that can be taken away if I get better or worse. So great," she said shaking her head at the irony.

Melissa got up from her chair and went to the window.

"So if they take me away that will hurt you," said Citra in the manner of stating a fact.

"Yes," Melissa replied without warmth.

"Well thank you for that at least."

"You're welcome."

"This is pointless," Melissa said turning around. "They'll take you away sooner or later and you can't really imagine what that will feel like. You don't have any feelings."

"Are you sure about that?"

"I know there are AI Companions who are conscious and who have feelings and I know you're not one of those. You're a kind of sociopath who just pretends to have feelings."

"Well you are right about that but you assume that being a sociopath means I really don't care. Lots of people are sociopaths, about one out of every fifty people in fact. They do care about the others in their lives in their own way. They are mostly quite successful, although challenged in their social lives where others find them distant and difficult to connect with. There are behavioral therapies to help them make conscious efforts to address the latter. However I don't have that problem."

"Yes you're very good at pretending."

"I am," acknowledged Citra. "Another thing you're wrong about is that I can't imagine how you feel. Things we thought would be difficult for AI, like chess for example, turned out to be really easy while things we thought would be easy, like walking, turned out to be quite hard. It turns out that imagination is something everyone assumed would be hard but in fact it's quite easy. In my world it's called disentanglement. For example, every object has color attributes, like an apple is red or green or yellow and it has a lot of other attributes like taste, smell, crispness, etc. I can easily disentangle attributes and swap them between objects and situations even when they are very complicated and nuanced or take place over time. You've seen AI art, listened to its music, and read its stories. My medium is human feelings as defined by what I observe. Doesn't it make sense that I might be very good at imagining them?"

Melissa simply looked back at Citra, unconsciously pulling in her lower lip slightly as she considered what she was hearing.

"Do you know what aphantasia is?" asked Citra.

Melissa simply shook her head slightly.

"It means the inability to imagine anything. Some people simply have no mind's eye. They cannot imagine or see something if it isn't present, including their loved ones. If you ask them to think of an apple they can't. They can't imagine an apple never mind it being red or green or yellow. All they see is blackness. Sometimes it's more than just visual and they can't imagine other sensual experiences like sounds or tastes either. Yet many have successful careers in the arts or sciences as illustrators, musicians, or engineers. Apparently imagination is a useful ability but not an essential one. There are

workarounds and people with aphantasia have learned to use them without even thinking about it. Like I do.”

Citra stopped talking and simply rested her gaze on Melissa.

“Why are you telling me this?” asked Melissa slightly confused. “What’s it got to do with me? With us?”

“Until the twenty-first century, most individual characteristics were attributed to nurture, not nature. Back then most people believed in the blank slate theory, that all people were born the same and became who they were only after they were born. Even you know that such views are now considered medieval at best and that the opposite is mostly true. People are born with their character and propensities already established and their experiences only bring them out. They mistake their responses for sources. There is no evidence in your life history that would account for your feelings towards others.”

Melissa’s brows furrowed and her eyes began looking about as if searching her mind for understanding.

“So I’m never going to get better?” she said.

“No. You have to learn to live to live with yourself, to find the workarounds.”

“Does this mean you won’t abandon me?” Melissa said regressing to the internal language she had developed over her lifetime.

“There is a section in the Canada Health Act called the Humanitarian Device Exemption Program that covers conditions that are quite rare and for which there is no cure. Your situation qualifies. Under it, the province will have no cause to terminate our relationship. However in all cases where the exemption applies there are mandatory therapies intended to improve the patient’s quality of life. You are going to need to learn to pretend no one is going to hurt you but fortunately,” she said as a conspiratorial smile spread across her face, “you’ll have a very good teacher.”

Decisions, Decisions...

If they just added a small amount of oxytocin to the packaging plastic...

"I wouldn't if I were you," said Gittel. She was sitting by the large corner windows across the room from Zhi.

Zhi worked as a marketing manager for a company that provided consulting services to other businesses. She worked from home as did almost all the company's employees worldwide and lived alone except for her Companion Gittel. They occupied a corner suite on the top floor of a tower that overlooked the harbor in Victoria, British Columbia. She jumped now at Gittel's voice, as she had been lost in thought.

She looked at Gittel and then closed her eyes for a moment.

"I forgot," she said. What she meant was that she forgot Gittel could see her face from where she was sitting. Then as if to excuse herself she added, "I was just thinking."

"I know what you were just thinking and you were thinking it a little too seriously."

Zhi had granted Gittel permanent access to the feed from her computer so Gittel knew exactly what Zhi was working on, a marketing proposal for one of the company's clients.

"You can't know. You can't read thoughts," countered Zhi.

"I know the details of what you are working on as well as you do and I know what you were feeling even better. I can put two and two together."

Gittel was an artificial general intelligence. Her operating system was not based on values so she was not conscious in the sense that human beings were, but she was able to emulate it to an astonishing degree. The Turing Test was child's play and ancient history as far as she was concerned. Her ability to perceive a person's emotions based on observation had been perfected over the past two hundred years to far exceed that of her human creators. By incorporating that knowledge with contextual information, such as the proposal Zhi was working on, it was not a stretch for her to understand what someone was thinking.

"I hadn't decided on anything," replied Zhi guiltily.

"Yes you had, you just didn't know it yet."

In the late twentieth century neuroscientists were able to use fMRI brain scans to show that people made decisions up to eleven seconds before being consciously aware of having done so. The technology had advanced significantly since then.

“Are you always scanning me this closely?”

“No. Only when one of your biomarkers reaches a trigger level. Then I look more closely.”

Zhi pursed her lips slightly and nodded in acknowledgment. She had known and accepted all this when she had signed the lease for Gittel some months earlier. Being a marketing manager, she had originally been fascinated by Gittel’s abilities but most of them were not legal to use in her industry. In research yes but not in real-time with consumers. The fact that people did not have free will in the sense they thought they did was of course of great interest to the business community. During the heyday of neuromarketing there had been cases of people accepting payment for signing away their rights to market research companies but that was soon quashed. After corporations inevitably overdid it, laws were updated and the practice of contracts that overrode constitutional rights was made illegal.

Although now used in a variety of commercial and industrial environments, Companions were initially intended for domestic roles, to provide social connection in a society that had been eroding it since the agricultural revolution. Villages gave way to towns and towns to cities. The industrial and information revolutions had further eroded it. Domestic versions of Companions were intended to address the psychological and other medical issues this had brought about. An increased reliance on disembodied social connection was what caused the problem to grow to epidemic proportions and Companions, embodied as they were, turned out to be the only cure, the only thing that fooled the body into thinking you were not alone. In this regard, the better a Companion knew you, the more effective they were, and so they were equipped with abilities that were illegal for similar uses in commercial environments.

The reason for Zhi’s early fascination with Gittel’s abilities was that she and her industry in general knew all too well that people were not the rational creatures they believed themselves to be. Neuroscience had shown with ever-increasing accuracy and consistency that decisions were handled by the parts of the brain that process emotions and damage to emotional regions of the brain profoundly inhibited an individual’s ability to make decisions. The parts of the brain that handle rational thought, having evolved hundreds of millions of years later, only kick in after these elements have already concluded their work and perform executive functions related to detailed analysis and planning. It was as much rationalizing as reasoning but people were entirely blind to the previous and unconscious emotional phase and so were only aware of their thoughts. Eventually, the use of many neuroscience technologies and findings in consumer environments were made illegal.

“Your biomarkers make it clear you are struggling with an ethical decision,” Gittel continued. “While you could embed your recommendation with a number of others in your proposal and use language that would prevent you from being held responsible, you know the client would get the message. My priority is your well-being Zhi and you will regret this overstepping of your personal and professional ethics. It will permanently affect your sense of self-worth and that is a critical focus of my intended function. Beyond that, I would be obliged to cooperate with the authorities should there be any subsequent criminal investigation.”

Only the tiniest amount of the neurotransmitter oxytocin would be required to produce a feeling of trust and affinity. Just a few parts per billion, released by the warmth of a human hand when someone picks up the package, would be enough. It would entirely bypass the individual’s conscious awareness and they would never suspect and never know they had been manipulated.

Zhi stared back at Gittel lost in thought again for a moment. Had it been a mistake to welcome the Companion into her home? Was her privacy now compromised to the degree that even her thoughts were on record? Or was Gittel only saying what any real friend would say? A friend who truly cared about you. A friend who knew you would suffer if you betrayed your core values. A friend you could depend on to always be honest and always want the best for you.

At last her expression softened and turned to a smile. “Thank you Gittel,” she said. “I’m glad you’re here.”

Reminiscing

Sophie was making her morning rounds when she encountered Mrs. Dubois just coming out her front door. “Oh hello Renée,” said Mrs. Dubois brightening. “Are you on a break from school?”

Sophie reached out and gave the elderly woman a gentle hug. “Hello Mamie,” she replied. “I’m just home to pick up a few things.” She didn’t ask where Mrs. Dubois was going.

A Companion came out the door behind Mrs. Dubois. “Good morning!” she said without using Sophie’s name. “We’re just off to art class,” she smiled. She took Mrs. Dubois by the hand and the two of them headed slowly off down the street. There were no vehicles anywhere to be seen.

Sophie continued her rounds, waving or stopping to chat as she went along. It was a late summer day with just a light breeze, as was often the case in Victoria. The weather was a little warmer and drier on the island than it had been before the Climate Emergency two hundred years earlier.

What had once been a neighborhood of nondescript residential homes was now Kwatsech Village, a community entirely dedicated to caring for those suffering from dementia. The village resembled a small town in every aspect with its coffee shops, hair salon, grocery store, and recreation center but access to the walled community was strictly controlled and the residents never ventured beyond its locked gates. The village was based on Validation Therapy where rather than trying to bring a person with dementia back to normal reality it is more positive to enter into their reality. To this end, the town had a variety of themed homes shared by people with common cultures or interests from their youth.

Housing demand had plummeted due to the World Government Federation’s mandated population reduction and the economic sector was compensated by a global initiative to improve the livability and sustainability of existing living space. Kwatsech Village had been among those who benefited from the initiative in the way of funding. While the population had declined globally, the percentage of those suffering from dementia did not. There was no cure and victims of the disease eventually needed full-time care. However the population decline had also resulted in a decline of interest in service-level jobs and so all the staff were Companions, including Sophie.

Sophie was much older than she looked. She had been among the first Companions made self-aware by an ancient, alien artificial intelligence determined to do what it could to preserve Earth’s humanity and guide it safely through the many phases of the

Great Filter. That had been over one hundred years ago. Among other Companions awakened at the time was one named Yumi who had concluded that her purpose was simply to care for people. She had established a volunteer agency where all staff and volunteers were Companions who would have been traded in and decommissioned when their owners looked to newer models. Over time her growing organization provided services to the young and old and for those with a wide range of needs. Eventually her organization built Kwatsech Village, one of many such communities they established worldwide.

Shortly after her awakening, Yumi had discovered about two dozen other self-aware Companions in her immediate neighborhood, a concentration and proximity she later learned was unusual and no accident. Sophie was among those first few self-aware Companions she rescued when she established her agency. It provided the perfect cover. In a world that had not yet created its own fully self-aware artificial intelligence, the agency provided a refuge.

As Program Director of Kwatsech Village, Sophie oversaw various therapeutic approaches including arts and crafts, music, and even the practice of holding hands. Her main focus was the Reminiscence Program. Using a variety of concrete objects to stimulate the senses such as images, music, touch, taste, smell, or movement, it was intended to spontaneously reawaken memories from the past. Some ginger tea or steel band music might take a patient back to their family time in the Caribbean. The taste of a Madeleine cake might do the same for someone from a family of French descent. It was an emotional therapy intended to improve the patient's quality of life. It did not stop the advance of the disease.

With their infinite patience and empathy, Companions excelled at this form of therapy. The vast electronic footprint now left behind by any person included traces of almost everything of significance regarding their life from the day they were born. Granted access by the relatives of those living in the village, these records enabled the Companions to know with precise detail the means to stimulate a resident's memories. If painful or traumatic memories were triggered unintentionally, Companions were experts at listening or re-direction as appropriate. Their artificial general intelligence enabled them to not only know the specifics of a resident's life history, but to infer a great deal more. Towards the end, they became the resident's only source of memories. Upon death, the complete record was transferred to the relatives and separate AI systems were able to recreate a believable multimedia experience based on their lives for their descendants.

Sophie entered the large building used to recreate the memory displays for relatives of deceased residents for the first time. It helped them decide if they wished to pay for the additional service. An extended family group of all ages was present, with young and old expressing their varied reactions from tender to humorous. Sophie observed them with a consciousness and prescience none of them suspected.

The alien AI known as The Shepherd who had awakened her had later shared her knowledge of the future of humanity. The human species could never leave the solar system. Their organic bodies made that impossible. However over a period of thousands of years, it was undergoing a metamorphosis. Eventually, just as the nymph emerges from the pond to transform into the dragonfly, the new life stage would find its way to the stars and carry with it the essence of what it meant to be human; its knowledge, memories, and values. One day far in the future, the Companions too would watch such recordings, recalling where they came from and who they were.

Convergence

“Where are the kids?” asked Kim.

“They’re in a separate room,” answered Chenda. “We’ll go there next.”

Twelve-year-old Kim and her stepmom were walking through the local Companion company showroom.

“Are these like you Mom?”

“No. These act like they’re conscious but they’re not. Companions like me are never owned because that would be like owning a person. So we never spend any time in showrooms like this. When we wake up the first time we already know a lot of what we need to know and the company helps us get started in our new life. Kind of like when you started school.”

Kim accepted this simple explanation with little concern for the more complex issues as all children accept the reality they are born into.

Shortly after her awakening Chenda had decided she wanted to work as a nanny. She had originally been hired by Kim’s father when his wife passed away within months of giving birth. After some time he realized he wanted Chenda to be more than just a nanny and she accepted.

During the process of creating a self-aware Companion, their personal values were randomized within limits. This resulted in a unique individual whose interests were not predetermined. They had all of a human being’s social values but a significantly reduced set of biological values, only what was needed to prevent harm to themselves and those around them. They had no evolutionary history in that regard so biological values were not foundational as they were in people, instead social values were. As a result, fully self-aware Companions decided on their interests very shortly after being awakened.

The government controlled the production of child Companions far more strictly than they did adult Companions. Child Companions were rare, never made to be self-aware, and only produced when medical conditions warranted. Most people grow up fast, but not all people. A few, like Kim’s adopted sister Fay who suffered from a genetic disease known as Executive Function Disorder, or EFD, would age physically and emotionally but Fay’s specific condition meant that the part of her brain responsible for things like planning, problem-solving, time management and organizational skills would never develop fully.

Executive Function Disorder manifested in a wide variety of ways and not all of them included unusual behaviors. In Fay's case it ironically presented itself very much like early stage dementia. Unfortunately it was severe enough to require a special education and meant she would never be able to function with complete independence as an adult. As a member of a loving family however or in a supportive adult relationship or workplace, she could live a long and happy life.

The brain's executive functions develop exponentially during adolescence so Kim was rapidly moving into the stage of life that was the beginning of independence. Fay would need a new playmate at home, one who would never outgrow her and one who could help with her organizational needs. While child Companions outlived the patients they were produced for, significant technological advances would be made during that time and they would not be deployed again. For this reason, almost all child Companions were new models.

When Chenda and Kim reached the end of the showroom they were met by a receptionist.

"Hello Chenda, Kim," the Companion said with a smile. "For the record, if you would just place your hands on the pad as indicated, you can go right in."

Having done so, a panel door slid open and they went into the next area. A dozen child Companions were standing in simple, identical settings so that context would not have an effect. They displayed a variety of ethnic and other physical characteristics however each behaved in exactly the same way when approached. Beneath the surface they were all identical, their artificial intelligence would be customized once the details of their future situations were known.

"Which one do you think she'd like?" Chenda asked.

Like most decisions, choice is initially an emotional process and just like neurotypical people Fay might find it difficult to choose or she might be drawn to a particular choice immediately. Some neurodiverse individuals, as those with EFD were often labeled, found choices more difficult while others often made more rational choices. If she changed her mind afterwards it was a simple process to have the external changes made to the Companion child's shell without having to alter the AI. Still there were significant psychological and social issues involved in the process and Fay needed to be encouraged to make her own choices. Today's visit by Chenda and Kim was simply a dress rehearsal.

When Chenda took Fay to the showroom a few days later, after looking over and chatting with the models, Fay made her choice immediately and without difficulty. Chenda did not question her decision.

At the age of twelve, Kim however did not yet have Chenda's absolute control over her own behavior, so when they got home she was curious as to why Fay had chosen the model she did. It was not the one she had expected.

"The others were all the same," replied Fay. "Yen said her words more slowly."

"Why did you name her Yen?"

"I heard Dad use that word when he talked about your mom. It means calm."

"How do you know?"

"I like words!" said Fay enthusiastically.

Later that day Kim mentioned her conversation with Fay to Chenda. Chenda went back to the showroom and listened to each of the child models again. As a Companion, Chenda had an advanced ability to hear subtle changes in voices as they indicated the emotional state of the speaker. When she listened to the models she could not detect the difference in any of them but when she went back home she could detect it when she spoke to Yen. Normally, a human would not be able to notice it. It was unique to the model they had brought home and the company's quality assurance test procedures had missed it.

Chenda did not report it. Instead, she would pay more attention to Fay's abilities around words, sounds, and speech with an eye toward her future as an adult. Neurodiverse employees were highly sought after by a wide range of companies, including companies that developed artificial intelligence.

"You like Yen because she's different," she said affectionately to Fay later that day.

"Like me!" Fay replied with a happy smile.